Ask your Jobber or write for Free Copies of our latest Cumulative Index and "How to File" Folders

TRADE NAME	MODEL	FOLDER NO.
Air King	A-410	484-1
Arvin	442 (Ch. RE-91)	484-2
Automatic	M-86	484-3
Belmont	Record Changer C-9	484-31
Collins	75A-1	484-4
Crosley	58TK	484-5
Dewald	B-401	484-6
Dewald	B-510	484-7
Grantline	508-7	484-8
Knight	5D-455	484-9
Meck	CE-500 (Ch. 5C5-P12)	484-10
Meck	CM-500 (Ch. 5D7-W18)	484-11
Motorola	77XM21, 77XM22, 77XM22B (Ch. HS-102)	484-12
Olympic	7-435V, 7-435W	484-13
Olympic	7-622, 7-638	484-14
Operadio	1A30	484-15
Philco	48-150	484-16
Philco	48-460, 48-460-1	484-17
Philco	48-1256	484-18
Silvertone	8072 (Ch. 101.834)	484-19
Sonora	WKRU-254A	484-20
Sparton	6AM06 (Ch. 6-06)	484-21
Stromberg Carlson	1204 (Ch. 112021)	484-22
Temple	G-725	484-23
Trav-Ler	5028	484-24
Truetone	D1752 (Fact. No. 7901-14)	484-25
Webster	66-1A	484-26
Westinghouse	H-161, H-168, H-168A (Ch. V-2118)	484-27
Woolaroc	3-13A, 3-14A, 3-15A, 3-16A	484-28
Woolaroc	3-17A, 3-18A	484-29
Zenith	6R886 (Ch. 6E02)	484-30

The PHOTOFACT Servicer

OCTOBER 4, 1946 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ VOL. 1, No. 6

IMPORTANT NOTICE

If you have not as yet sent in your card, registering as a member of the Howard W. Sams Institute, do so at once. The Institute is about to start a series of direct mailings to Institute Members. These are so valuable you cannot afford to miss a single one.

The first of these special mailings will be a large brochure written by men who are nationally known for their success in this field and is entitled: "How to Increase Your Business." This new material is written in an easy-to-understand style. It comes right to the point because it is written about *your* business—the business of repairing radio receivers. This brochure brings ideas that get results—results that have been proven!

A registration card for Institute Membership is included with each PHOTOFACT Set. It is not necessary to re-register with each issue, but if there is any question as to whether you are on the Institute's roll, be sure to send in the card from your latest set today. Don't be disappointed. Material that is prepared for Institute members is *exclusively for their use*, and can be obtained in no other way. Don't miss out on the timeliest aid ever provided to the servicing fraternity.

★ ★

SPECIALLY PREPARED INSTRUCTION BOOKS ON ALL POPULAR RECORD CHANGERS

Here Is Real News!

PHOTOFACT Folder Set No. 7, publication date November 19th, will include a specially prepared instruction book on an extremely popular type of record changer. Thereafter, every set of PHOTOFACT Folders will include such a folder until all popular record changers have been covered. These will treat the mechanical adjustments as exhaustively and as completely as regular PHOTOFACT Folders cover the electrical features of receivers.

Score another first for PHOTOFACT Folders for bringing you up-to-date servicing information and right when you need it.

You asked for this service—said you wanted it—so here it is.

★ ★

"HOW CAN YOU FIGURE YOUR PROFITS?"

"How Can You Figure Your Profits?" is the title of a new folder by Don Shaw, available on request and without charge to Institute Members. It's Part I of our forthcoming new series "Accounting Procedures for Radio Service Engineers"—there are three and possibly more parts which will be produced later.

If you want to know how to tell whether you are making a profit or taking a loss in your business, send for your copy today. A postal card will do, but be sure to mention that you are a member of the Institute. If you are writing for the first time be sure to send us the Membership Application Card enclosed in your latest PHOTOFACT Folder Set.

When completed all the brochures mentioned in these announcements will be automatically mailed to Institute members—a priceless benefit. These preliminary announcements are made so that you can obtain individual sections as they are released, in case you have special immediate need for them.

Here is further concrete evidence of the sincere desire and purpose of the Howard W. Sams' Company to aid the service profession.

★ ★

LIST PRICES

The suggestion has been repeatedly made to us that we should show the list price of each radio set described in a PHOTOFACT Folder. We think this is a good idea—and there is just one thing that prevents us from doing this. Under existing conditions it is impossible to provide list price information and be sure that it is accurate.

Price revisions and changes in OPA ceilings are occurring so rapidly that we could not attempt to keep up with them; and a wrong price could conceivably lead to the financial loss of a patron. Even though we had correct prices at the time a folder was compiled it is probable that many would be wrong by the time a completed PHOTOFACT Folder Set left our bindery. In addition, quite a number of PHOTOFACT Folders are compiled from factory samples shipped to us before the selling price has been determined.

When conditions become more stabilized we may find it possible to bring you price information. We hope so, because so many of you have asked for it.

★ ★

THE LETTER "K"

Quite a number of our Subscribers have written, asking why we use the symbol or letter "K" in our resistance charts and schematics to indicate "thousands" of ohms.

In the metric system the correct prefix for quantities of 1,000 units is kilo—as for example, kilocycle, kilowatt, kilogram, kilometer, etc. The correct term for 1,000 ohms is kilohms.

We regard as confusing the practice of some engineers of using the symbol "M" for indicating 1,000 units. While the letter "M" indicates 1,000 in Roman Numbers, it also is the initial of "MILLION" and "MEG." The letter "K" can stand for "1,000" and nothing else.

★ ★

REMINGTON-RAND BINDERS

The long awaited Remington-Rand Imitation Leather Hard Cover Three Post Binders for PHOTOFACT Folders are now available from your radio parts supply house. If you have not already done so, place your order at once! The price is $3.39 each

net as announced in "How to Use PHOTOFACT Folders," included with Set No. 1.

It is hard for a description to do justice to the handsome appearance of these new binders. Suffice it to say that filled only with the current PHOTOFACT Sets No.'s 1 to 6, it forms an impressive big volume that will do credit to any service establishment.

We still think the only way to file PHOTOFACT Folders is in a file drawer arranged alphabetically. This method saves times, costs less and expands infinitely. Those of you who use this method say it can't be beat and that when compared to the use of a binder, the saving of time in locating a folder is a real benefit.

★ ★

INSTITUTE NOTES

Static from Synthetic Rubber Tires

Our patron, Mr. L. T. Davies of Lone Rock, Wisconsin, told us about a radio noise problem he has with a Chevrolet. The car, which is equipped with static eliminators in the wheels, had been perfectly quiet until the installation of a new set of synthetic rubber tires. After this, according to Mr. Davies the "wheels static" became extremely bad.

We asked our friend, Mr. A. T. Alexander, service manager of the Galvin Manufacturing Corporation, to comment on this; and his reply is so clear and interesting we are desirous of passing the information on to you. Mr. Alexander says:

"We are of the opinion that Mr. Davies' interference is not wheel static but instead is tire static. This type of interference has been particularly bad with synthetic tires. A good test for tire static is to drive over a pavement which causes the interference, then to turn the hose on all of the tires wetting them thoroughly, and to immediately drive over the same pavement. The interference should disappear until the tires dry out.

"Having definitely proved that the interference is caused by the tires, we would recommend the use of a tire static powder which is produced by United States Rubber Company and which can probably be secured through any U. S. Rubber dealer. This powder is inserted inside the inner tubes, and in most cases, successfully eliminates the interference."

★ ★

"PRIVATE BRAND" TRADE NAMES

Another request we sincerely wish we could honor is that we list names of the manufacturers of "private brand" receivers, as well as the vendor. Conversely, many have asked us to list the various trade names under which private label manufacturers may sell their product. We will do as much of this as is possible.

Let us examine the "private brand" setup. Many chain stores, and mail order houses merchandise radio receivers under their own trade names. These merchandising agencies spend thousands of dollars in advertising to build acceptance for their trade name. Obviously, they would not be pleased to have it known that in any town it might be possible to buy the same set under different names, and perhaps at different prices!

We see nothing wrong with the private brand system of merchandising as a whole, because the ultimate consumer usually receives good value for his money; and it is of no importance to him whether or not the merchandising agency owns the factory that made the set.

The rub comes when the service man needs repair parts or service information. It is disconcerting not to be able to find servicing data on a receiver that is in the shop; and at the same time know that this data is undoubtedly available under some other trade name. It is in cases like this where the "RMA Code Sheet" enclosed with PHOTOFACT Folder Set No. 5 comes in handy in bringing you the name of the maker of an unknown set.

Please believe us that we wish at all cost to avoid the issuance of duplicate PHOTOFACT Folder Sets for the reasons outlined above. We will bring you all the cross-reference data possible. However, we cannot violate confidences, otherwise we would be ostracized and cut off from the rapid flow of actual receivers which permits the early publication of folders. We may add that radio manufacturers as a whole are becoming more and more impressed with our service to the industry in presenting service information properly—and promptly. All of which is good news, because it helps us on our goal of making each set of PHOTOFACT Folders better, more valuable, and more timely than the preceding.

★ ★

JUST TO REMIND YOU—

In which we review the important thing we told you in previous issues of the PHOTOFACT Servicer.

Folders—

"How Much Is Your Labor Worth?" Parts 1 and 2 by Don Shaw are available on request to Institute Members. If you didn't get your copies, just drop us a postal card.

If you didn't get Set No. 1 and a copy of "How to Use It" tell us—we will gladly send you a copy Free. It tells you how to use and how to file PHOTOFACT Folders and how to become a member and keep your membership active in the Howard W. Sams Institute. (You can always send your check to us for back numbers. We will see that they are shipped promptly.)

There's no charge for exchanging imperfectly printed folders. If you have one send it back and we will gladly exchange it.

Be sure to write and tell us of your field experiences. You'll be given full credit for them and you'll be helping others.

Don't forget, please—Tell us what receivers you want analyzed first—what replacement parts manufacturers you want us to list and how we can be of more help to you.

We hope that during the coming months, many of you will find it possible to visit us and see for yourself what we are doing. The latchstring is always out so come whenever you can. Our new telephone numbers are MArket 6383 and MArket 6384.

PUBLICATION DATES

When will other sets of PHOTOFACT Folders be published?

Set No. 7	**November 19**
Set No. 8	**November 29**
Set No. 9	**December 19**
Set No. 10	**December 29**

Use the order blank accompanying this set of Folders —address the envelope and send it to your radio parts supply house—they will do the rest.

If you have been unable to get any issues of PHOTOFACT Folder Sets, send your order and money directly to us and we will see that you are supplied.

The PHOTOFACT Servicer

FEBRUARY 14, 1948 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ VOL. 4, No. 34

ROBERT M. ELLIS, *Editor*

NEW PARTICIPATING MANUFACTURER

Radio service technicians will welcome the news that beginning with this issue, replacement loudspeakers made by Quam-Nichols Company, 33rd Place and Cottage Grove Avenue, Chicago 16, Illinois, will be listed in the "Replacement Data" Columns of PHOTOFACT Folders.

No company is permitted to participate in our program without meeting requirements which include integrity, and facilities for national distribution. In addition, to be a participant, a company must actually manufacture the product, and have full control over its quality. The manufacturers who are listed in PHOTOFACT Folders are truly the "400" of the radio industry.

★ ★

TELEVISION RENTAL BY ALERT RADIO SERVICE DEALER

While at the Philadelphia Town Meeting, we learned of a method of television sales which may be quite interesting to our patrons. The Great Neck Electric Company of Great Neck, Long Island, is providing rental of television sets for parties at a price of $35.00 per evening, which includes temporary installation, doublet antenna, lineup, and tuning of the set prior to the party.

They currently have five receivers and have turned down requests every time a major television event occurs such as a championship prize fight, football game, or World Series baseball game. The rentals have in almost all instances produced at least one new television sale to a guest at the party if not to the person throwing the "shindig."

Of course, this is possible in Great Neck without the necessity of erecting a high antenna, due to the fact that it is a residential community, far enough from New York to be free of multi-path ghost problems.

★ ★

CHANGE OF ZONE NUMBER

The Post Office has accorded us the privilege of "factory delivery service" on mail, which means that our mail will be picked up and delivered at our door. This should result in a somewhat quicker delivery of both incoming and outgoing mail, and better service to our patrons.

From now on, please remember that our Zone Number is Indianapolis 7. The figure 7 is the postal coding for the "factory delivery" service.

★ ★

OSCILLOSCOPE CONNECTIONS FOR F.M. ALIGNMENT

It has been brought to our attention that some patrons have been puzzled where to attach the vertical amplifier connections of an oscilloscope with some types of I.F. amplifiers. Such a connection is necessary to secure the proper pattern when peaking the I.F. transformers with the visual alignment procedure; and this is considered by many to be the best way of adjusting the I.F. transformers to the proper acceptance curve.

The conventional method of making such a connection, shown below as Fig. 1, is to attach the 'scope to the grid return of the limiter. Such a connection develops the required voltage by rectification in the following grid circuit; and the presence of the 'scope lead does not detune the circuit.

Because of the detuning effect, a similar connection cannot be used with amplifiers of the types shown below in Fig. 2 and Fig. 3. However, a very satisfactory voltage source can be obtained from the screen connection of the following tube. A 0.01 mfd. paper condenser is required in series with the 'scope lead to remove the d.c. component—that is, the screen voltage. The audio voltage exists by virtue of the fact that the usual screen voltage by-pass is not large enough to short the audio component.

Connections at the discriminator are not generally satisfactory for I.F. amplifier alignment since the discriminator characteristics have a tendency to mask those of the I.F. amplifier.

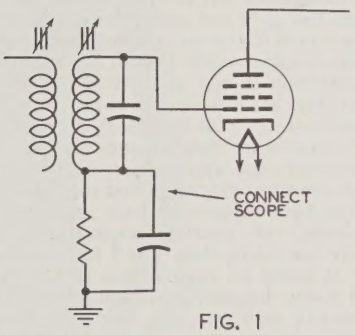
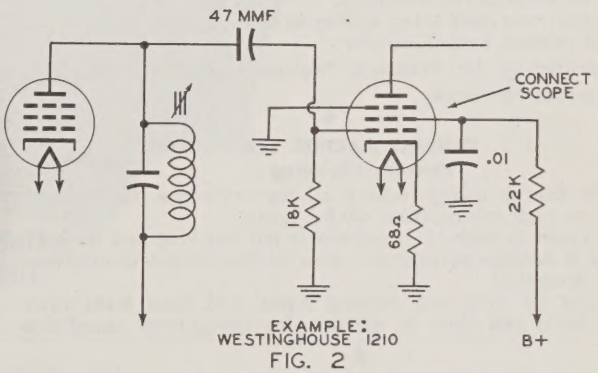
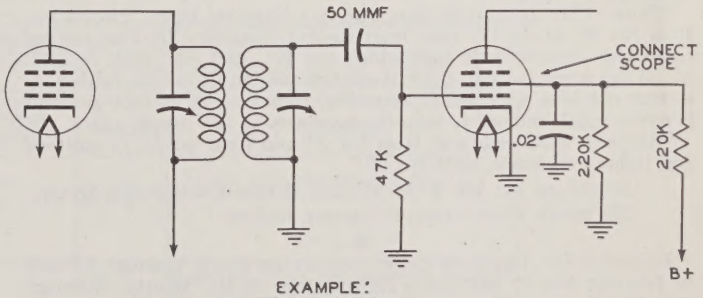


FIG. 1



EXAMPLE:
WESTINGHOUSE 1210
FIG. 2



EXAMPLE:
ZENITH 9H082
FIG. 3

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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FIELD EXPERIENCES

Here is your opportunity for passing practical service experiences to others for the benefit of all. For every service "Field Experience" published, we issue to the author a certificate that is good for one PHOTOFACT Folder Set. Since it is impossible to verify the accuracy of contributions, we cannot be responsible for either the diagnosis made of the receiver trouble, or the results which will be obtained by following the suggested repair routine. All contributions become the property of Howard W. Sams & Company, Inc.

★ ★

SELECTING PARTS STOCK

"You might be interested in a system which makes Sams' PHOTOFACTS do additional service. I use them to help make up my stock. It works like this.

"I used to date parts when received, and in that way, could tell roughly what items were moving and which were not. However, for some time I have had the uncomfortable realization that this method would allow my stock to lag from one to five years behind the market; it was based on sets that had gone bad and many of which would soon be junked. Now I keep a card file of my regular customers and all the sets they own. They like the idea when I point out that our record of serial numbers is a great help in case of theft and that it is possible to stock more parts for their set when we have complete data.

"I also keep close watch of what the local dealers are selling because most of those sets will come in for repair sooner or later. Now, armed with a list of model numbers and approximate quantities, all I have to do is check through the PHOTOFACTS to find out what output and power transformers, speakers, volume controls and filter condensers should be stocked. It doesn't take nearly as much time as you'd think.

"It's too soon to give too much data but I have the comfortable feeling that the stock is based on present and future needs instead of present and past. I know definitely that I'm giving better service with fewer interruptions to send for parts, and that there are fewer pieces of deadwood in the inventory.

"Incidentally, the same thing applies to tubes; I add tube types as they appear in Sams. Simple, isn't it?"

Submitted by: Mr. Francis C. Wolven, Route No. 2, Box 178, Saugerties, New York

★ ★

GENERAL ELECTRIC 112
Photofact Pending

"Trouble: Birdies at high volume all the way across the dial and at medium to high volume from 800 k.c. down.

"Cause: Leads to both i.f. transformers left too long and dress of these leads is critical; particularly those to the midget transformer used as the second i.f.

"Shortening all leads and dressing B-plus and plate leads away from grid leads and close to chassis, plus realignment cured the trouble."

★

SEEBURG CHANGER K
Photofact 471-36, Set 11

"Trouble: The needle lands incorrectly. Could be set to land properly on either 10" or 12" records but if set properly for one, it would be off on the other.

"Cause: Changer out of time due to a loose set screw, PHOTOFACT Item No. 36, in the 12" reset lever casting, Item No. 37. This casting has a semi-circular hole into which the 12" reset rod, Item No. 22, fits. If the screw is loose, there is enough play to throw the timing off so that the tone arm locator assembly, Item No. 46, cannot get into position quick enough to stop the tone arm at the proper place.

"Remedy: Hold reset rod, Item No. 22, and Item No. 37, in position and tighten set screw, Item No. 36."

Submitted by: Mr. K. H. Shanks, Shanks-Evans Radio Service, 229 North Price Street, Princeton, Indiana

★

Editor's Note: The *Field Experience* on the Zenith Changer S-11680 in SERVICER No. 33 was also a contribution of Mr. Shanks, although erroneously credited to another patron. The error resulted from an unauthorized shifting of copy by our printer in the effort to obtain a better balanced page.

★ ★

PHILCO 47-1230
Photofact 4712-23, Set 22

"We do a considerable amount of work on new Philco radios and radio-phonos. The most common complaint on the Philco combination Model 47-1230 is that the phonograph won't play but the radio plays as good as ever. We have traced this trouble every time to an open resistor (Item 116, 150 K, ½ W, phono amplifier, plate load) going to Pin 6 of the 7AF7 tube. Replacement of this resistor clears up the trouble."

Submitted by: Mr. Herman V. Harmon, Harmon Electric Company, P. O. Box 63, Martin, Kentucky

★ ★

TRAV-LER 5000-I
Photofact 471-27, Set 11

"This set had a crackling, frying noise when first turned on, and this noise would disappear after set was on a few minutes. I traced the cause to a defective 39 ohm resistor, Item 24, across Pins 3 and 5 of 35W4 rectifier tube.

"Replacing this with a new half-watt resistor cleared up the trouble."

Submitted by: Mr. Ray Brown, 44 Arden Street, New York 34, N. Y.

★ ★

PHILCO PORTABLE 46-350
Photofact 4610-24, Set 10

"Complaint: Distortion and weak volume sounding like a leaky coupling condenser.

"Look for an open 3.3 megohm screen dropping resistor (Item 34) in the 1U5 second detector circuit. I have found this trouble in two sets."

Submitted by: Mr. Arthur E. Dibble, New Albany, Pennsylvania

★ ★

WESTINGHOUSE H-126
Photofact 463-19, Set 3

"I have found this trouble on at least four Westinghouse H-126 Receivers.

"Complaint: Distortion at normal and above normal volume. Clear at low volume.

"In this set the speaker grill cloth is glued to a thin cardboard baffle, which is in turn glued to the outside rim of the speaker. In every case that I examined, the cardboard had warped a little toward the speaker cone and at high volume the speaker cone was hitting the grill cloth. To remedy the complaint, remove the baffle and cut a cardboard spacer the same size as the speaker rim. Place this between the speaker and the baffle so that the grill cloth is positioned farther away from the speaker cone. This makes an effective repair and requires only a few minutes."

Submitted by: Mr. William L. Rogers, Rogers Radio Service, 1629 Lagonda Avenue, Springfield, Ohio

★ ★

DEWALD A-514
Photofact 4717-6, Set 27

"We had several of these receivers come in from dealers with the same complaint. As soon as you turned them on they would begin to smoke and emit an odor of burning. An inspection of the chassis showed filter resistor Item No. 22 (1,500 ohm 1 watt) to be cooked. Naturally the first thought would be a shorted filter condenser, but these checked o.k. The trouble in all cases proved to be at the No. 6 and No. 7 connections on the 12BE6 tube socket. These had shorted due to a run of solder during assembly. As this tube is at extreme opposite end of chassis from the rectifier, and as miniature socket wiring is always close, it is very easy to waste time running down the cause of this overload."

Submitted by: Mr. O. J. Kunkle, Braker & Kunkle, 7566 Verree Road, Philadelphia, Pa.

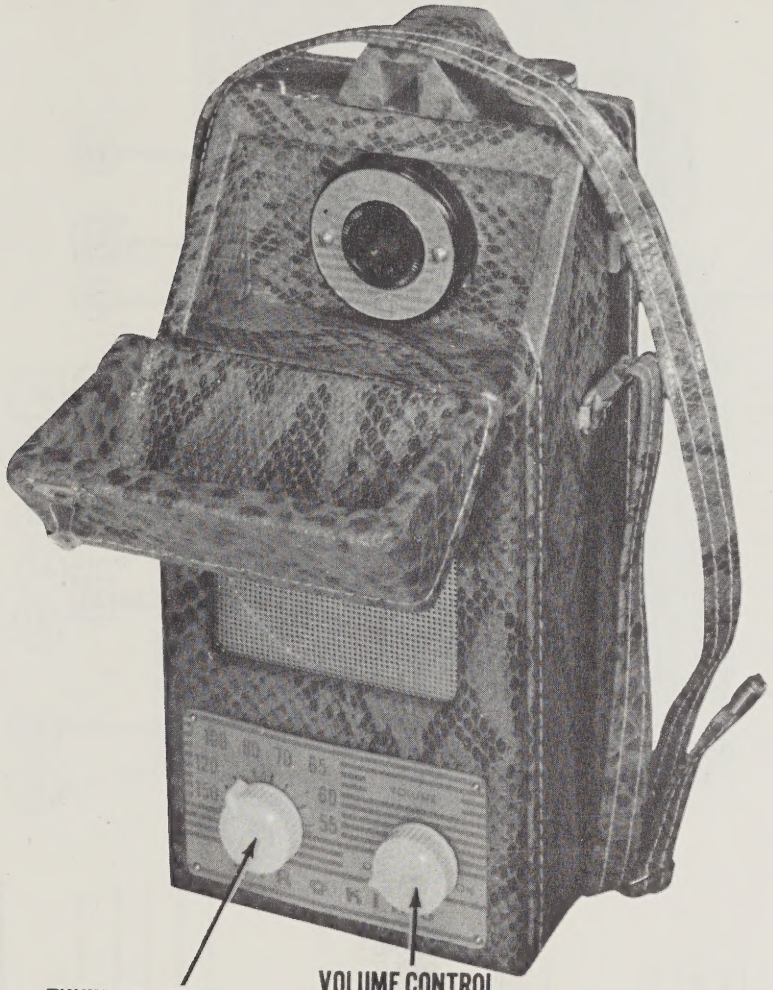
PUBLICATION DATES

When will other sets of PHOTOFACT Folders be published?

Volume 4—Set No. 35	**March 20**
Volume 4—Set No. 36	**March 20**
Volume 4—Set No. 37	**April 16**
Volume 4—Set No. 38	**April 16**

If you have been unable to get any issues of PHOTOFACT *Folder Sets, send your order and money directly to us and we will see that you are supplied.*

AIR KING MODEL A-410
BATTERY OPERATED



AIR KING MODEL A-410
BATTERY OPERATED

AIR KING MODEL A-410

TRADE NAME	Air King, Model A-410
MANUFACTURER	Air King Products Co. 170-53rd St., Brooklyn, N.Y.
TYPE SET	Battery Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q4 Power Output
POWER SUPPLY RATING	1.5 Volts "A" Supply and 67.5 Volts "B" Supply 225 MA @ 1.5 Volts DC and 9.8MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to large stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2		Loop	1600KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1948 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 2/47 SET #34 FOLDER #484-1

PARTS LIST AND DESCRIPTIONS

AIR KING MODEL A-410
BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIR KING PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1T4	1T4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3Q4	3Q4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AIR KING PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5	8	150		M-8-150			BR8I5	Filter
6	.007	600		S-6-006	TC-26	484-006	DT6D6	Output Plate Bypass
7	.005	150		QA1M-2-.006	TC-25	638T-005	ZZW1D6	Audio Coupling
8	.01	400		S-4-01	TC-11	338T-01	DT4S1	AF Screen Bypass
9	.001	200		WA1M-2-.001	TC-21	338T-001	ZZW1D1	Audio Coupling
10	.01	400		S-4-01	TC-11	338T-01	DT4S1	AVC Filter
11	220			MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
12	100			MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
13A	2 Meg.	½	2488	D13-139	AM-66-Z	Volume Control
B	Shaft		Not Req.	E	KS3-3	Attach to 13A per instructions
C	Switch		" "	42	SW-A2	" " " " "

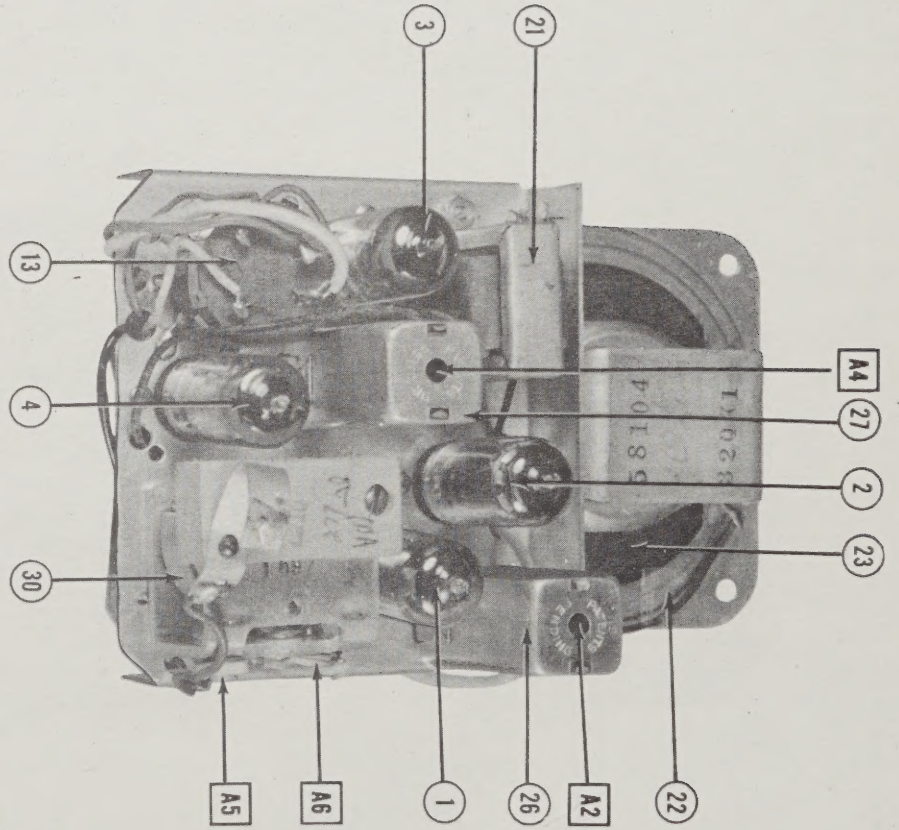
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AIR KING PART No.	IRC PART No.	IDENTIFICATION CODES
14	100KΩ	¼		BTS-100K	Br.-Blk.-Yl. Oscillator Grid
15	3 Meg.	¼		BTS-3.3 Meg.	Or.-Blk.-Grn. AVC Network
16	10 Meg.	¼		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
17	3 Meg.	¼		BTS-3.3 Meg.	Or.-Blk.-Grn. AF Screen Dropping
18	1 Meg.	¼		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
19	470KΩ	¼		BTS-470K	Yl.-Vi.-Yl. Output Grid
20	470Ω	¼		BTS-470	Yl.-Vi.-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AIR KING PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
21	8000Ω	3.6Ω	630Ω	.8Ω	1342			A-2998*	*Remove frame from original and use with replacement.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIR KING PART No.	JENSEN PART No.	QUAM PART No.	
22	FIELD PM	VC IMP. 3.6Ω	58104		3A07$	$Fabricate new mounting bracket.
23	CONE DIA. 3-3/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AIR KING PART No.	MEISSNER PART No.	
24	Loop Ant.		3Ω	28206		
25	Osc. Coil	1.2Ω	6.2Ω	28213		
26	Input IF	22.5Ω	22.3Ω	1455-11	16-6668	
27	Output IF	22.5Ω	22.3Ω	1455-11	16-6669	

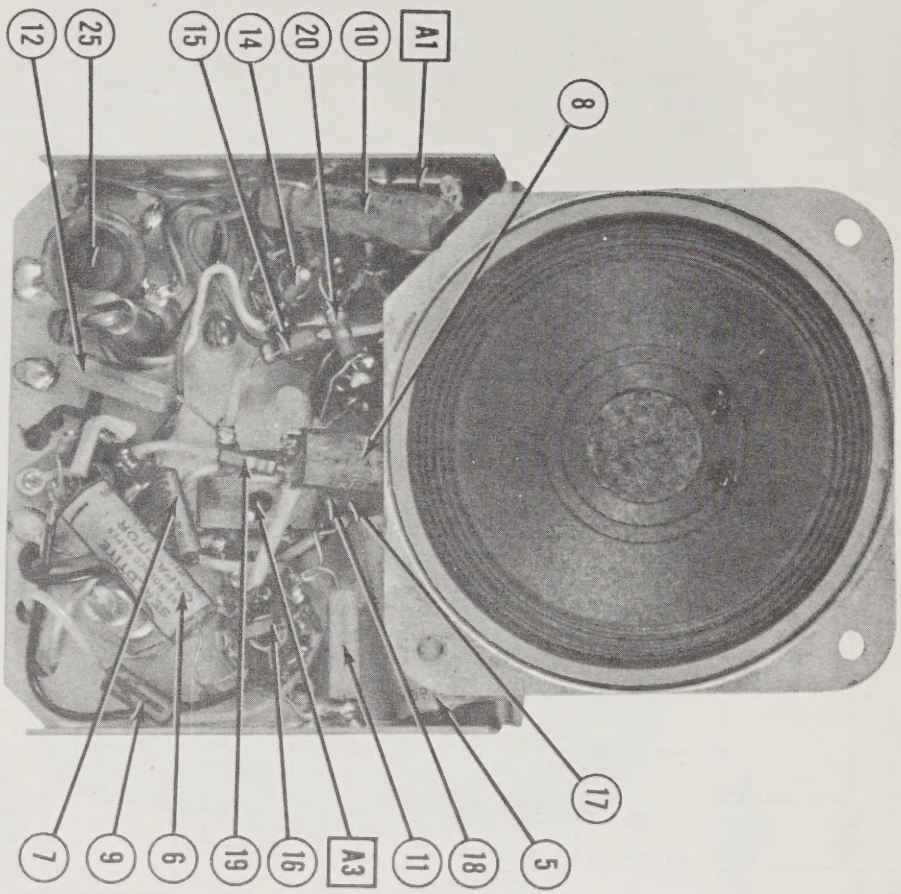
BATTERIES

ITEM No.	VOLTAGE	AIR KING PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
28	1.5 V"A"		#950			2 Used in parallel
29	67.5V "B"			#467		

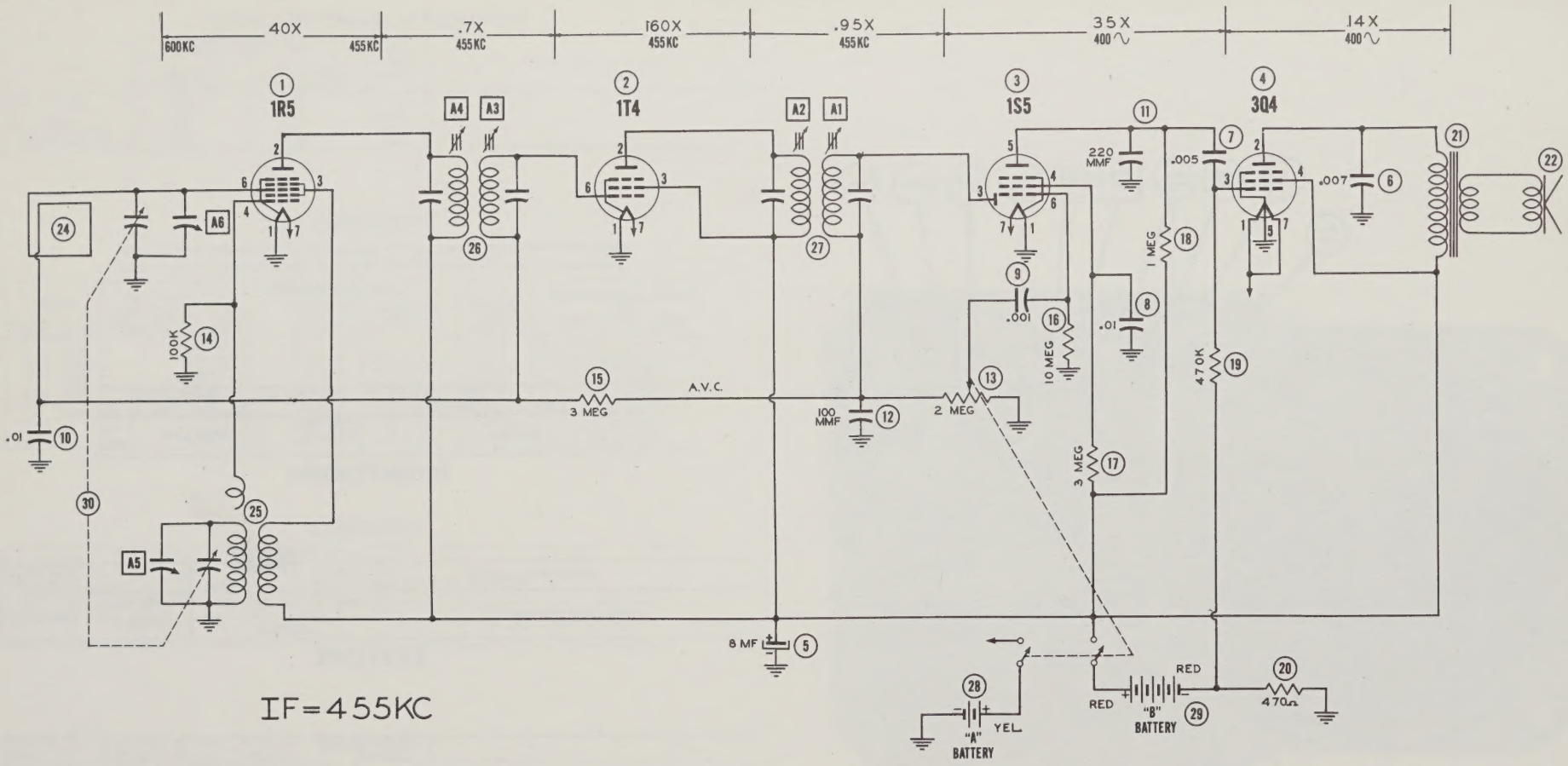
MISCELLANEOUS

ITEM No.	PART NAME	AIR KING PART No.	NOTES
30	2 Gang Var. Cap Escutcheon	1697 40132	(14-277MMF, 20-138MMF) (with dial)

CHASSIS—BOTTOM VIEW



AIR KING MODEL A-410
BATTERY OPERATED



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	62VDC	62VDC	-15VDC§	0V.	0V.	1.4VDC
2	1T4	0V.	62VDC	62VDC	-4.3VDC	0V.	0V.	1.4VDC
3	1S5	0V.	0V.	-.1VDC	13VDC	10VDC	0V.	1.4VDC
4	3Q4	1.4VDC	62VDC	-.8VDC	62VDC	0V.	62VDC	1.4VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	100KΩ	100KΩ	100KΩ	*	5 Meg.	*
2	1T4	*	100KΩ	100KΩ	470Ω	*	5 Meg.	*
3	1S5	*	INF.	2 Meg.	3.4 Meg.	1.1 Meg.	10 Meg.	*
4	3Q4	*	100KΩ	480KΩ	100KΩ	*	100KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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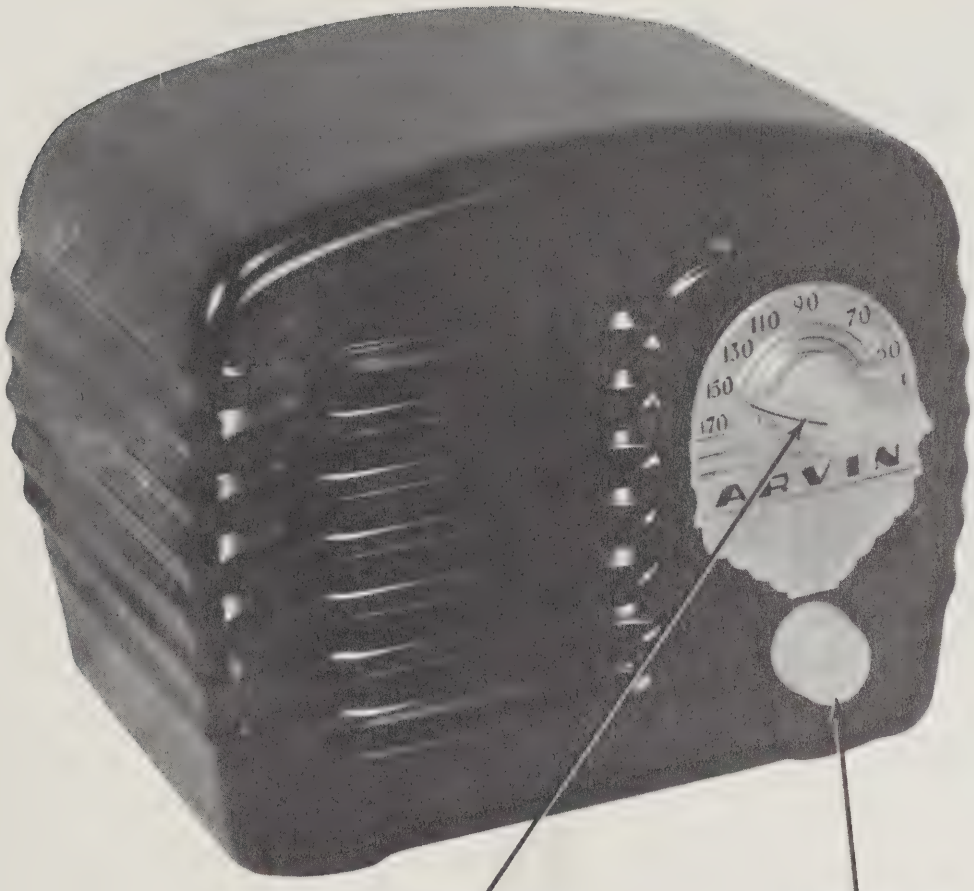
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

ARVIN MODEL
442 (Ch. RE-91



ARVIN MODEL
442 (Ch. RE-91

ARVIN MODEL 442

TRADE NAME	Arvin, Model 442 (Ch. RE-91)
MANUFACTURER	Noblitt Sparks Industries, Columbus, Indiana
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 12SA7 Converter, 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1700KC RATING .25 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy ant. to .001 MFD to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to B-.	1700KC	"	"	A3	Adjust for maximum output.

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DATE 2/48 SET #34 FOLDER #484-2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7	12SA7	8R	
2	Det.-AVC-AF	12SQ7	12SQ7	8Q	
3	Power Output	50L6GT	50L6GT	7AC	
4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	40	150	A19176	DSB-303	TA-240	PRS-A40302	EZ4215C	Filter - Red
B	20	150						" - Blue
C	20	25			TA-25			Cathode Bypass-Grn.
6	.05	400	C20068-503	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
7	.002	600	C20068-202	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
8	.05	200	C20067-503	S-4-05	TC-15	484-05	DT2S5	AVC Filter
9	.05	400	C20068-503	S-4-05	TC-15	484-05	DT4S5	Line Isolation
10	10000	350	C20203-103	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass-Cer.
11	100	350	A21645	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass-Cer.
12	100	350	A21645	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter-Cer.
13	50	350	A21643	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap.-Cer.
14	14				MS-415			RF Coupling
15	2000		*	MW.5-22	1FM-22	1467-002	1W5D2	Audio Coupling-Cer.

*Item 15 and 26 obtained as unit-Part #A21642.

CONTROLS

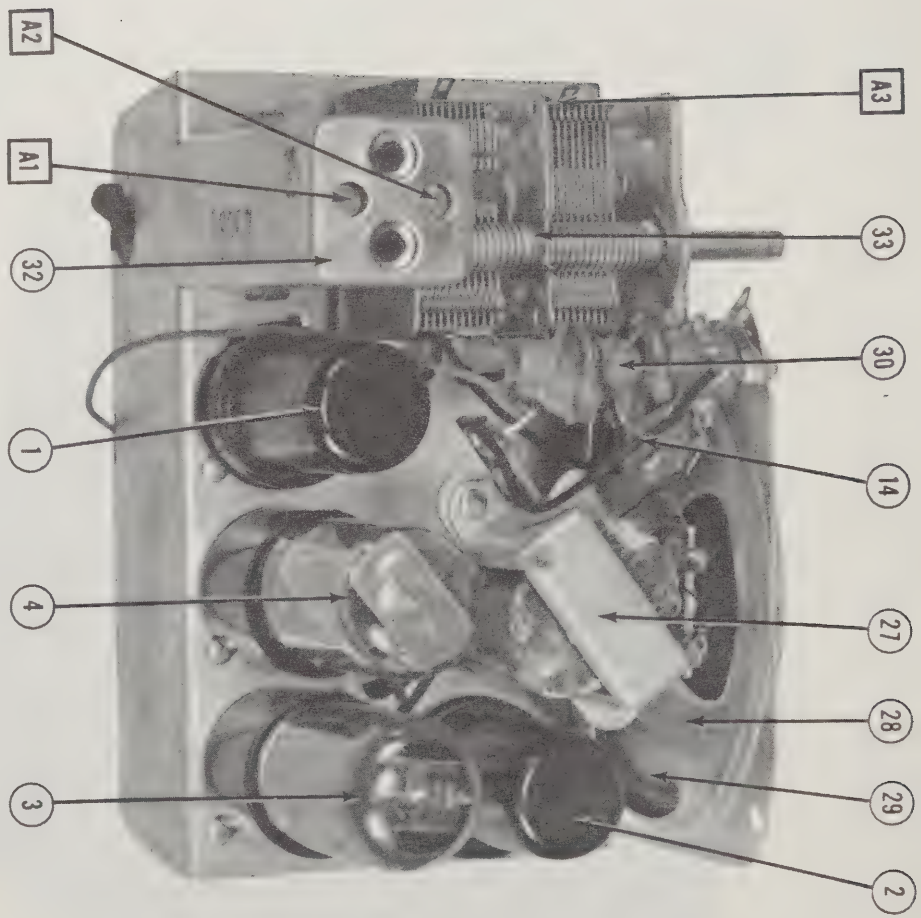
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
16	2 Meg.	½	C21630			Volume Control & Sw.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	IDENTIFICATION CODES
17	22KΩ	½	C20060-223	BTS-22K	Red-Red-Or. Oscillator Grid
18	330KΩ	½	C20060-334	BTS-330K	Or.-Or.-Yl. Line Isolation
19	4.7 Meg.	½	C20060-475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
20	15 Meg.	½	C20060-156	BTS-15 Meg.	Br.-Grn.-Blue AF Grid
21	470KΩ	½	C20060-474	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
22	150Ω	½	C20060-151	Bw-½-150	Br.-Grn.-Br. Output Cathode
23	2200Ω	1	C20070-222	BTA-2200	Red-Red-Red Filter
24	15Ω	½	C20060-150	BW-½-15	Br.-Grn.-Blk. Surge Limiter
25	47Ω	1	A19177	BW-1-47	Yl.-Vi.-Blk. Line Dropping
26	1 Meg.		*	BTS-1 Meg.	Output Grid

*Items 15 and 26 obtained as unit-Part #A21642.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ARVIN PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
27	2,000Ω	4.0Ω	162Ω	.4Ω	AC18258-1	A-3876†	T22S45†	A-2928†	†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ARVIN PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
28	PM	4.0Ω	C21626		4A07	
	CONE DIA.	VC DIA.				
29	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

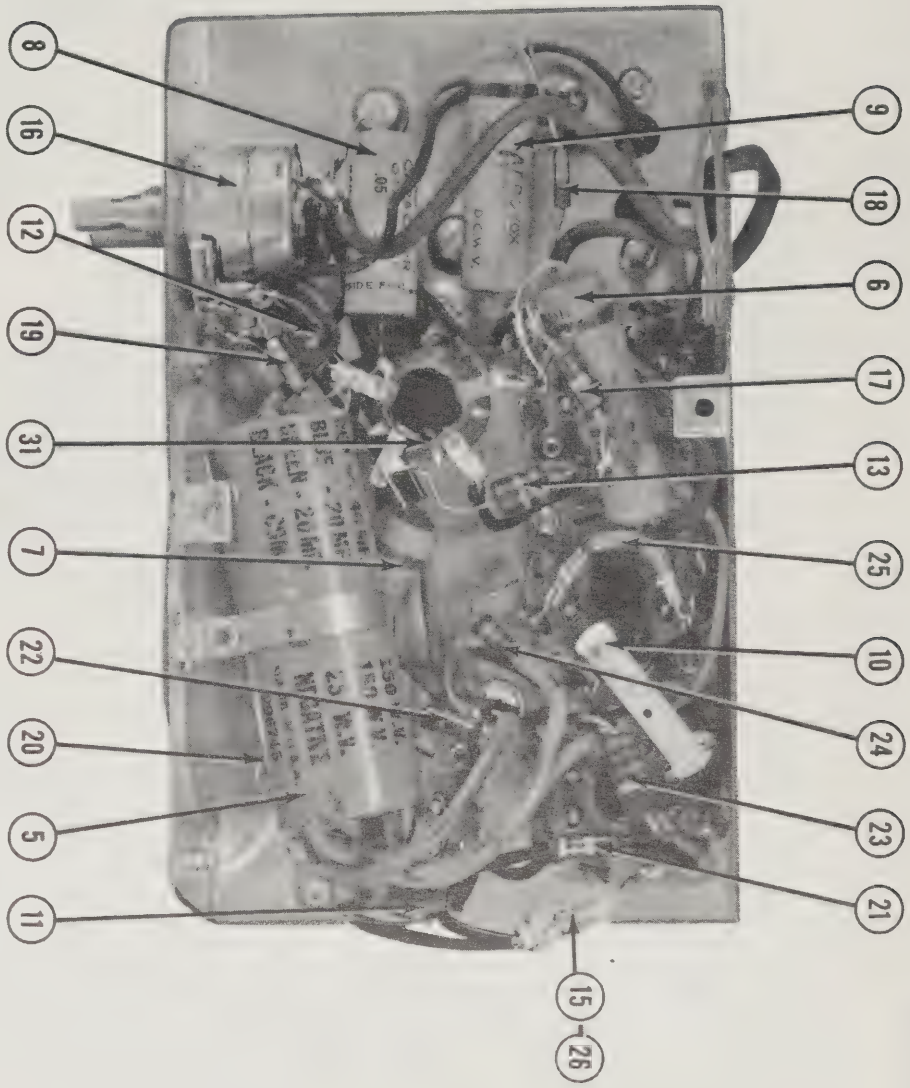
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ARVIN PART No.	MEISSNER PART No.	
30	Ant. Coil	32Ω	3Ω	AC18255-1		
31	Osc. Coil	5.5Ω	.5Ω	AC18256-1	14-1040	
32	IF Coil	16Ω	17Ω	AC18257-1		

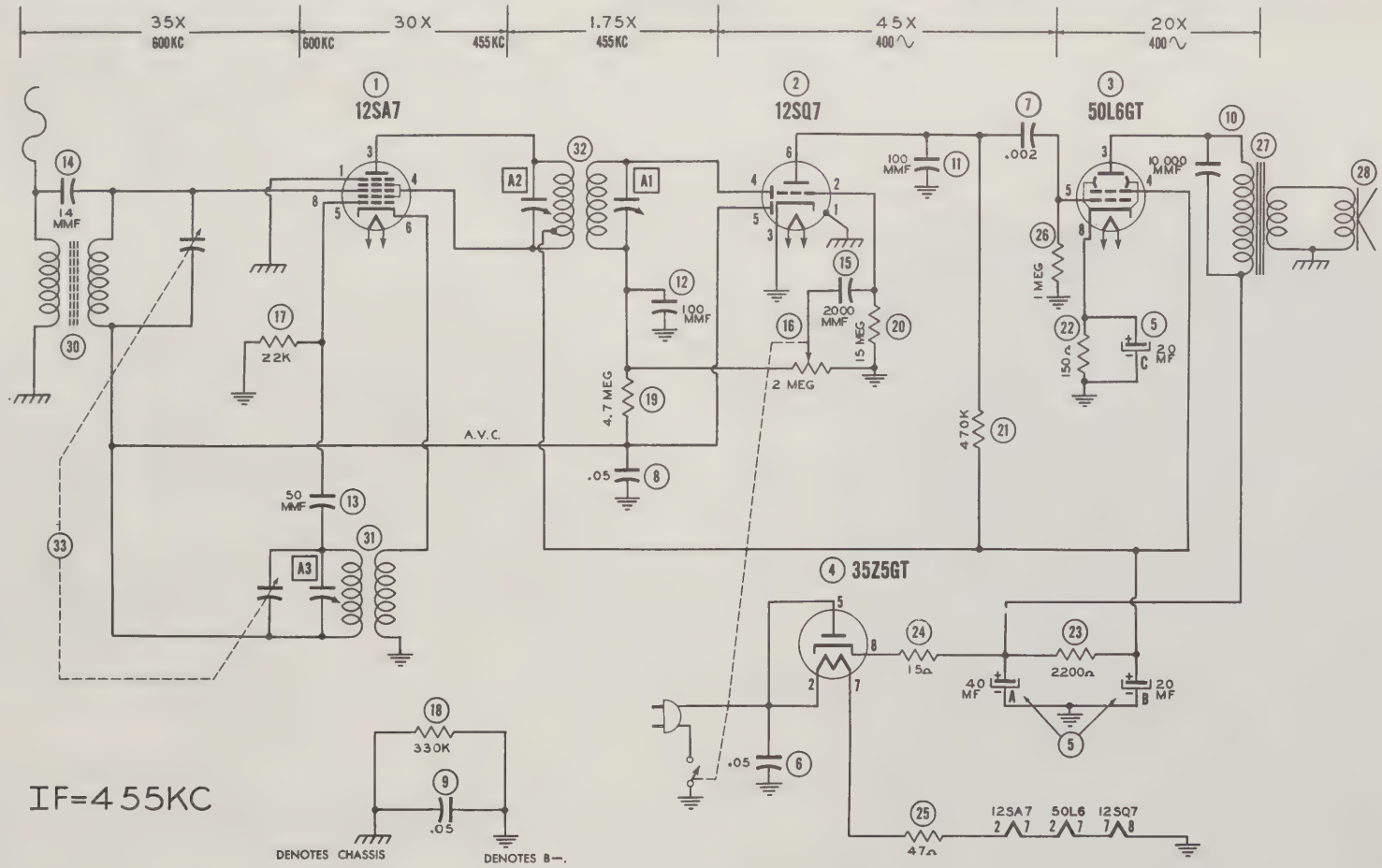
MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
33	2 Gang Var. Cap.	B17115	(15-363MMF, 31-193MMF)

CHASSIS—BOTTOM VIEW



ARVIN MODEL 442 (Ch. RE-91)



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	75VAC	98VDC	98VDC	-9.5VDC§	0V.	65VAC	-.4VDC
2	12SQ7	0V.	-.5VDC	0V.	-.4VDC	-3.5VDC	50VDC	11VAC	0V.
3	50L6GT	0V.	65VAC	124VDC	98VDC	0V.	0V.	11VAC	5.5VDC
4	35Z5GT	0V.	117VAC	110VAC	75VAC	117VAC	127VDC	84VAC	130VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	320KΩ	72Ω	500KΩ	500KΩ	20KΩ	.6Ω	61Ω	6 Meg.
2	12SQ7	320KΩ	15 Meg.	0Ω	2 Meg.	6 Meg.	970KΩ	12.5Ω	0Ω
3	50L6GT	INF.	61Ω	500KΩ	500KΩ	1 Meg.	INF.	12.5Ω	150Ω
4	35Z5GT	INF.	150Ω	142Ω	72Ω	150Ω	500KΩ	120Ω	500KΩ

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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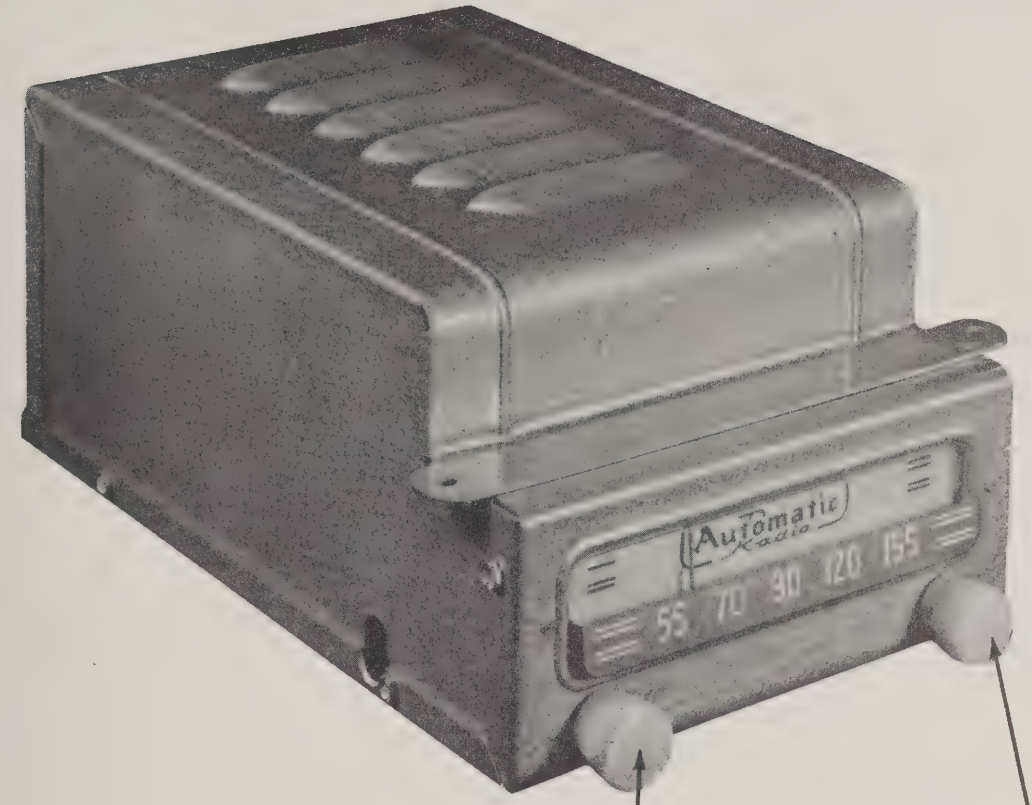
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



AUTOMATIC
MODEL M-86

AUTOMATIC
MODEL M-86

AUTOMATIC MODEL M-86

TRADE NAME	Automatic, Model M-86
MANUFACTURER	Automatic Radio Mfg. Co., Inc., 122 Brookline Ave., Boston 15, Mass.
TYPE SET	Battery Operated Universal Automotive Superheterodyne Receiver
TUBES (SIX)	Types, 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6AT6 Det.-AVC-AF, 6AQ5 Power Output, 6X4 Rectifier.
POWER SUPPLY	6 Volt Storage Battery
TUNING RANGE—BROADCAST	540-1560KC RATING .5 Amps. @ 6.3 Volts DC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD	High side to center stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output.
2	50MMFD	High side to ant. socket. Low side to chassis.	1560KC	"	"	A5	" " " "
3	50MMFD	"	1400KC	Tune for maximum output.	"	A6,A7	" " " "
4	50MMFD	"	600KC	"	"	A8,A9, A10	Adjust for maximum output. Repeat Steps 2, 3 & 4 until no further improvement can be made.

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DATE 2/48 SET #34 FOLDER #484-3

PARTS LIST AND DESCRIPTIONS

AUTOMATIC MODEL 1-86

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6BA6	6BA6	7BK	
2	Converter	6BE6	6BE6	7CH	
3	IF Amp.	6BA6	6BA6	7BK	
4	Det.-AVC-AF	6AT6	6AT6	7BT	
5	Power Output	6AQ5	6AQ5	7BZ	
6	Rectifier	6X4	6X4	15BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AUTOMATIC PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	350	CE-86	DY-312	EL-323	AF64K4A	UP2235C	◘ Filter
B	20	350						▲ "
C	20	25						Cathode Bypass
8	.008	1600		TM-16-008	TR-28	1684-0075	MD16D8	Buffer
9	.5	400		S-4-5	TC-5	484-.5	DT4P5	Hash Filter
10	.5	200		S-2-5	TC-5	484-.5	DT4P5	" "
11	.01	600		S-6-01	TC-11	684-01	DT6S1	Output Plate Bypass
12	.01	600		S-6-01	TC-11	684-01	DT6S1	Audio Coupling
13	.006	400		S-6-006	TC-26	484-006	DT4D6	" "
14	.05	200		S-4-05	TC-15	484-05	DT2S5	Screen Bypass
15	.05	200		S-4-05	TC-15	484-05	DT2S5	" "
16	.05	200		S-4-05	TC-15	484-05	DT2S5	AVC Filter
17	.05	200		S-4-05	TC-15	484-05	DT2S5	" "
18	200	300		MO.5-32	1FM-32	1468-0002	5W5T2	AF Plate Bypass-Cer.
19	200	300		MO.5-32	1FM-32	1468-0002	5W5T2	Diode RF Filter-Cer.
20	100	300		MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.-Cer.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21	750KΩ	½	RV-49			Volume Control & Sw.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AUTOMATIC PART No.	IRC PART No.	IDENTIFICATION CODES
22	20KΩ	2		BT-2-22K	Red-Blk.-Or. Screen Dropping
23	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
24	3600Ω	½		BTS-3900	Or.-Blue-Red IF Cathode
25	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
26	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
27	250KΩ	½		BTS-270K	Red-Grn.-Yl. AF Plate Load
28	500KΩ	½		BTS-470K	Grn.-Blk.-Yl. Output Grid
29	300Ω	½		BTS-330	Or.-Blk.-Br. Output Cathode
30	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter
31	50Ω	½		BW-½-47	Grn.-Blk.-Blk. Hash Suppression
32	50Ω	½		BW-½-47	Grn.-Blk.-Blk. "
33	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network-See Note

Note-Not used in all models.

VIBRATOR

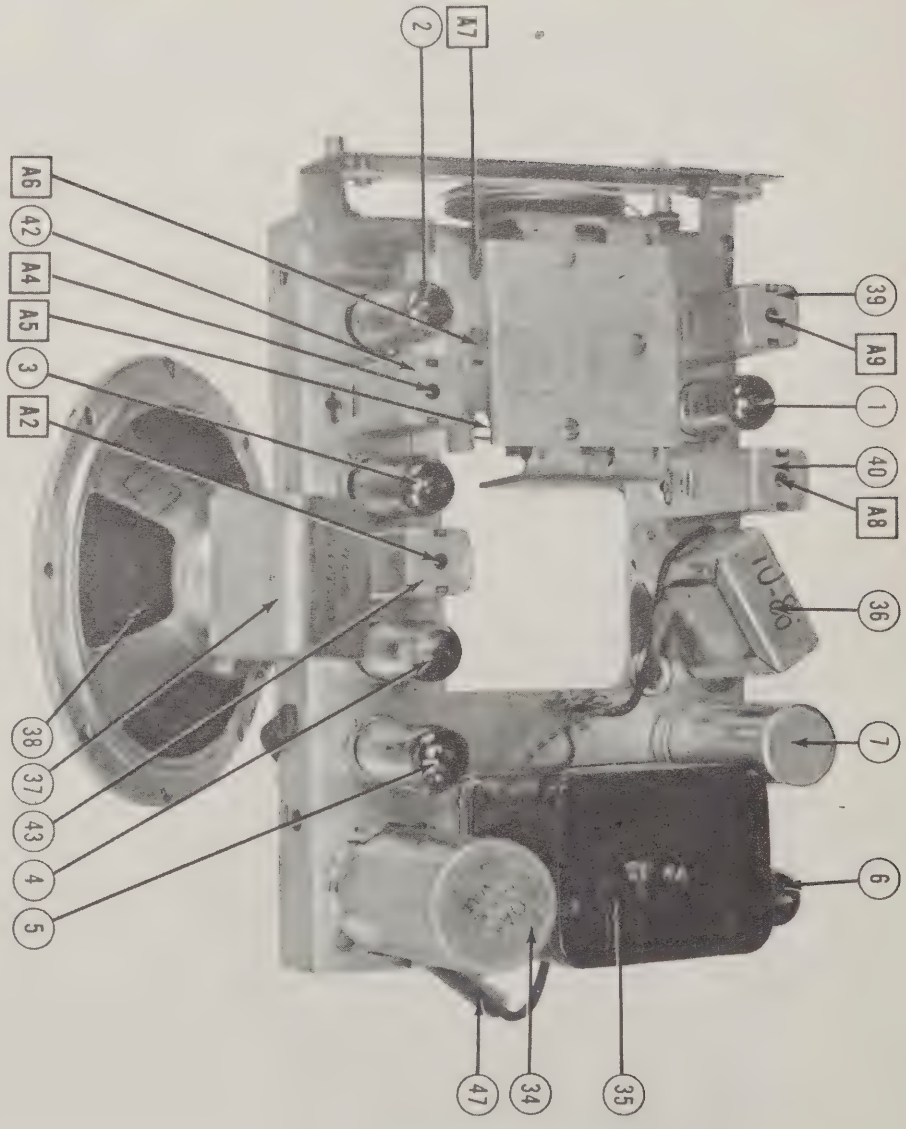
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: AUTOMATIC PART No.	REPLACEMENT DATA: RADIART PART No.	INSTALLATION NOTES
34	Interrupter	6.3	115∿	V-83	5301	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: AUTOMATIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
35	6.9V DC @ 2.2A	310V CT @ .035A			TV-86	P-6301*		P-2969*

*Drill new mounting holes.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AUTOMATIC	STANCOR	THORDAR'N	MERIT	
	PRI.	SEC.	PRI.	SEC.	PART No.	PART No.	PART No.	PART No.	
36	5000Ω	3.8Ω	560Ω	.8Ω	TO-86	A-3877	T22846	A-2930	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AUTOMATIC PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-107		
37	PM	3.8Ω	PM-702	Mod. P5-V	5A15	
	CONE DIA.	VC DIA.				
38	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

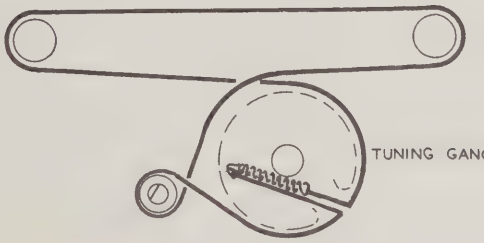
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	AUTOMATIC PART No.	MEISSNER PART No.	
39	Ant. Coil	13.9Ω	3.9Ω	57FB-3		
40	RF Coil	85Ω	5.2Ω	57FB-4		
41	Osc. Coil		5.5Ω			
42	Input IF	17.5Ω	17.2Ω	1455-16	16-6668	
43	Output IF	17.5Ω	17.2Ω	1455-16	16-6669	
44	RF Choke		.2Ω			
45	RF Choke		.2Ω			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					AUTOMATIC PART No.		
46	Bayonet	7.5	0.2	White			Type 51

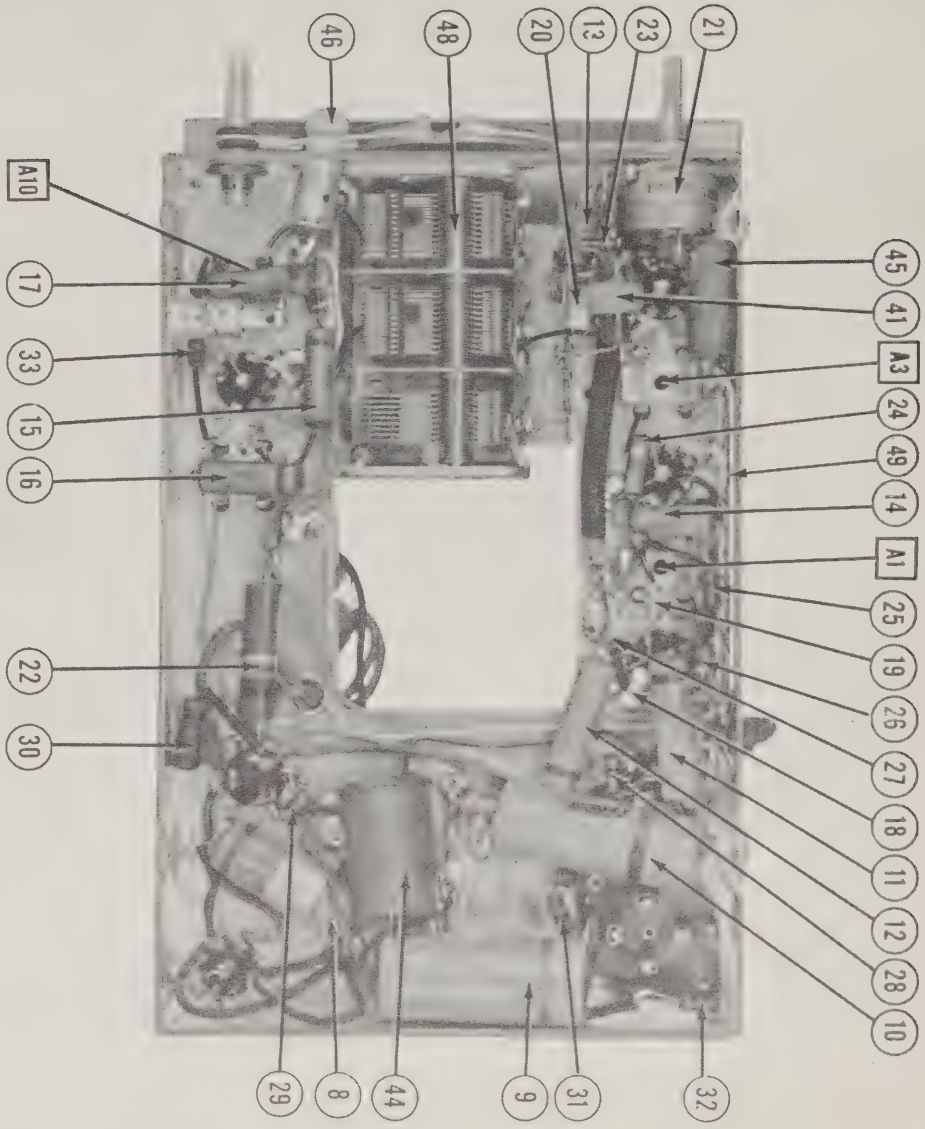
MISCELLANEOUS

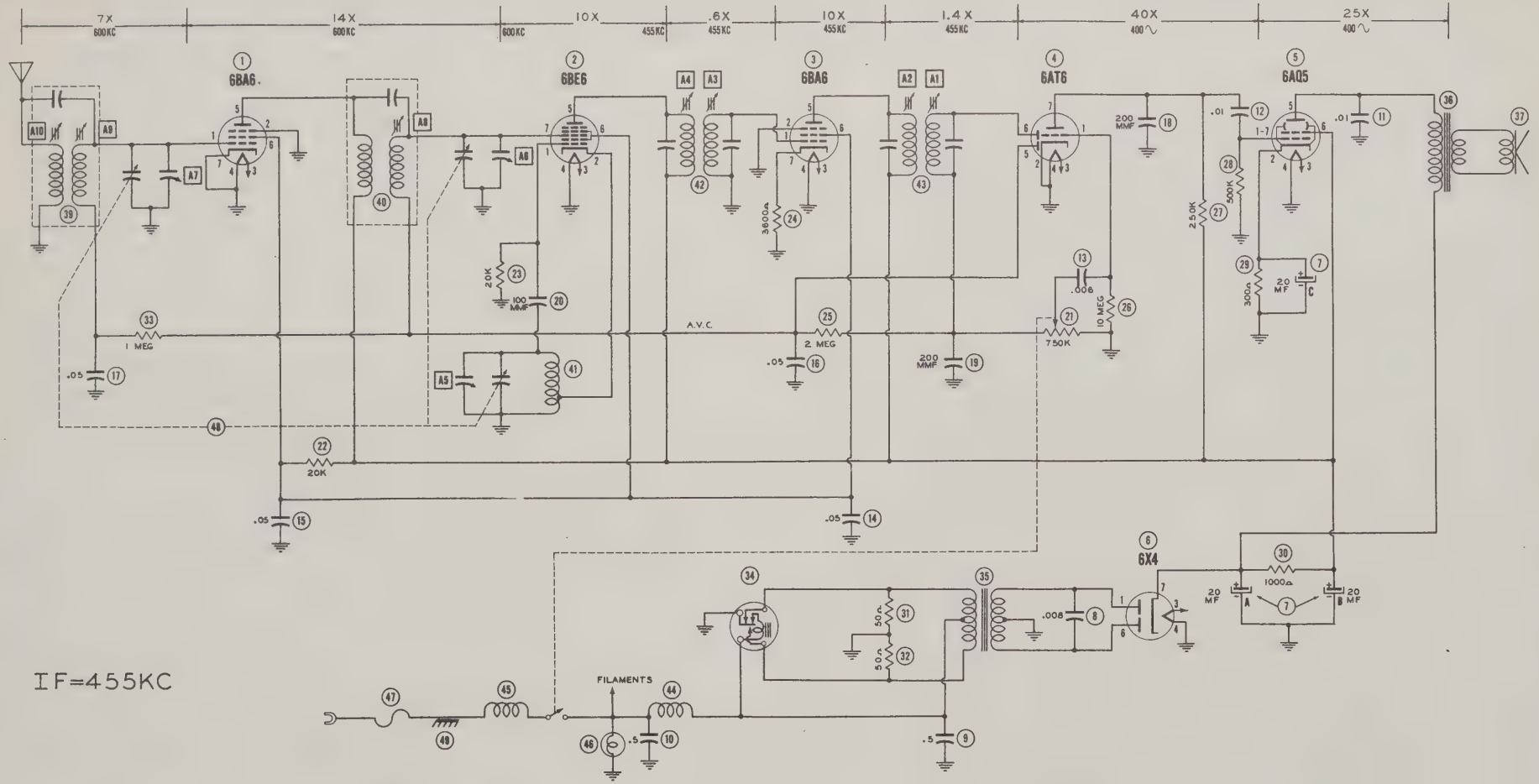
ITEM No.	PART NAME	AUTOMATIC PART No.	NOTES
47	Fuse		15 Amp.
48	3 Gang Var. Cap.	CV-148	(23-387MMF, 23-387MMF, 40-204MMF)
49	Spark Plate		



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	6BA6	-.5VDC	0V.	6.1VDC	0V.	170VDC	60VDC	0V.
2	6BE6	-5VDC§	0V.	6.1VDC	0V.	170VDC	60VDC	-.5VDC
3	6BA6	0V.	0V.	6.1VDC	0V.	170VDC	60VDC	4.4VDC
4	6AT6	-.8VDC	0V.	6.1VDC	0V.	-.5VDC	-.5VDC	75VDC
5	6AQ5	0V.	8VDC	6.1VDC	0V.	175VDC	170VDC	0V.
6	6X4	155VAC	0V.	6.1VDC	0V.	0V.	155VAC	187VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	6BA6	3.5 Meg.	0Ω	.1Ω	0Ω	80KΩ	100KΩ	0Ω
2	6BE6	20KΩ	1Ω	.1Ω	0Ω	80KΩ	100KΩ	2.5 Meg.
3	6BA6	17.2Ω	0Ω	.1Ω	0Ω	80KΩ	100KΩ	3.5KΩ
4	6AT6	10 Meg.	0Ω	.1Ω	0Ω	2.5 Meg.	700KΩ	330KΩ
5	6AQ5	500KΩ	300Ω	.1Ω	0Ω	80KΩ	80KΩ	500KΩ
6	6X4	360Ω	INF.	.1Ω	0Ω	INF.	400Ω	80KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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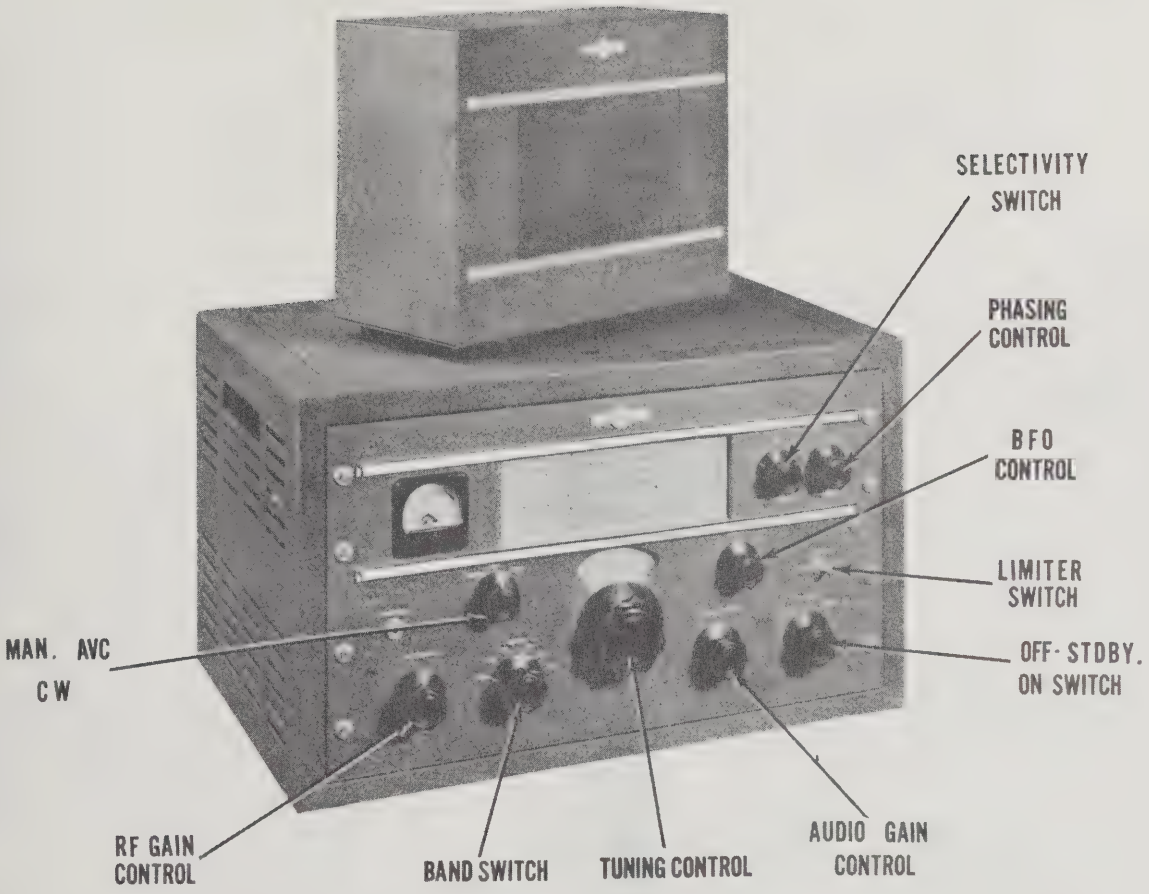
484-3

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

COLLINS
MODEL 75A-1



COLLINS
MODEL 75A-1

COLLINS MODEL 75A-1

TRADE NAME	Collins, Model 75A-1
MANUFACTURER	Collins Radio Co., Cedar Rapids, Iowa
TYPE SET	AC Operated Commercial Type Superheterodyne Receiver
TUBES(FOURTEEN)	Types, 6AK5 RF Amp., 6SA7 1st Mixer, 6AK5 XTAL Osc., 6SK7 IF Amp., 6L7 2nd Mixer, 6SJ7 Osc., (2) 6SG7 IF Amp., 6H6 Det.-Limiter, 6SJ7 AVC, 6SJ7 BFO, 6SJ7 AF Amp., 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC
RATING	.80 Amp. @ 117 Volts AC
TUNING RANGE -	3.2-4.2MC, 6.8-7.8MC, 14.0-15.0MC, 20.8-21.8MC, 26.0-28.0MC, 28.0-30.0MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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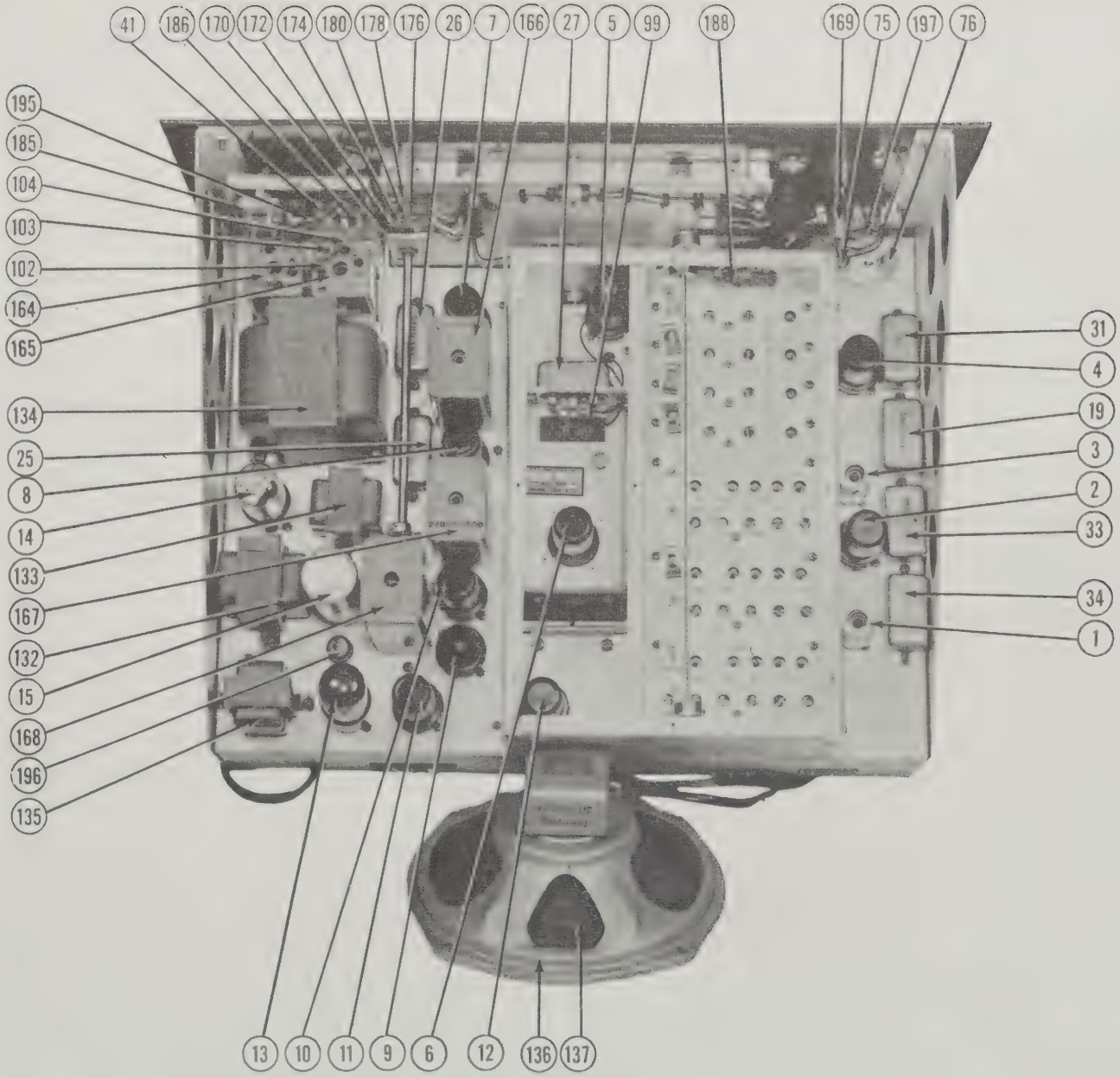
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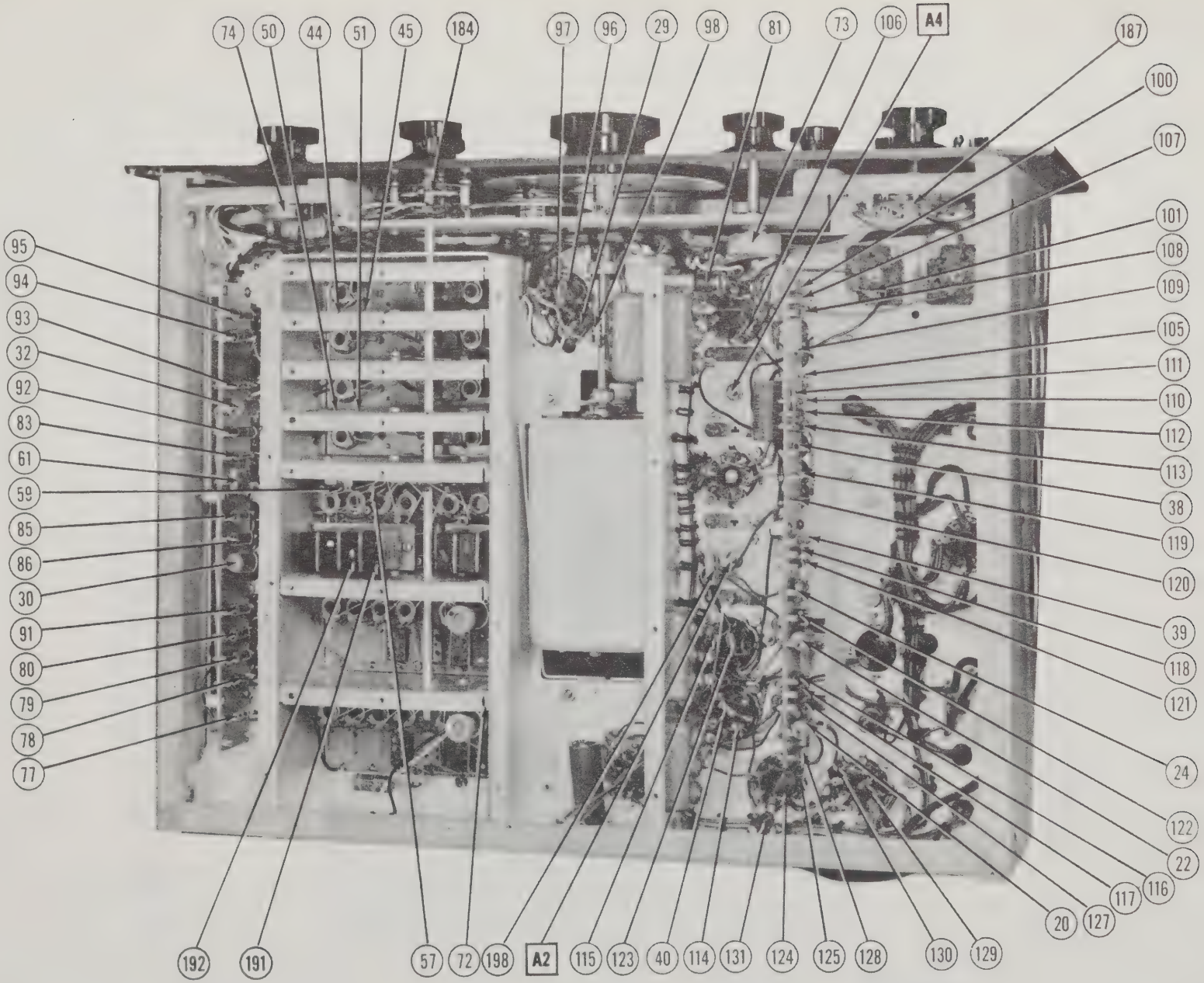
CRYSTAL OUTPUT
RF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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6AK5	6AK5	7BD	
2	1st Mixer	6SA7	6SA7	8R	
3	Crystal Osc.	6AK5	6AK5	7BD	
4	IF Amp.	6SK7	6SK7	8N	
5	2nd Mixer	6L7	6L7	7T	
6	Oscillator	6SJ7	6SJ7	8N	
7	IF Amp.	6SG7	6SG7	8BK	
8	IF Amp.	6SG7	6SG7	8BK	
9	Det. & Limiter	6H6	6H6	7Q	
10	AVC	6SJ7	6SJ7	8N	
11	BFO	6SJ7	6SJ7	8N	
12	Audio Amp.	6SJ7	6SJ7	8N	
13	Power Output	6V6GT	6V6GT	7AC	
14	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
15A	40	450	183100900	DY-2x40-450	EL-240	AF88J	UP4445	▲ Filter
B	40	450						▲ "
16	12	150		M-12-150	UT-121	PRSA150-12	BR1215	AF Cathode Bypass
17	10	50	183100800	M-10-50	TA-510	PRSA50-10	BR105	RF Gain Control Bypass
18A	.1	600	956301640	XDMR6-3X.1	BP-316	630-.1-.1-.1	DYR6111	IF Grid Filter
B	.1	600						Filament Bypass
C	.1	600						IF Cathode Bypass
19A	.1	600	956301640	XDMR6-3X.1	BP-316	630-.1-.1-.1	DYR6111	Filament Bypass
B	.1	600						1st Mixer Plate Decoup.
C	.1	600						IF Cathode Bypass
20	.01	600	931000500	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
21A	.1	600	956301640	XDMR6-2X.1	BP-216	630-.1-.1	DYR6011	BFO Screen Bypass
B	.1	600						AF Screen Bypass
22	.01	600	931000500	S-6-01	TC-11	684-01	DT6S1	Audio Coupling
23A	.1	600	956301640	XDMR6-3X.1	BP-316	630-.1-.1-.1	DYR6111	AVC Filter
B	.1	600						Audio Filter
C	.1	600						Det. Cathode Bypass
24	.1	150	931000100	S-4-.1	TC-1	484-1	DT4P1	Audio Coupling
25A	.1	600	956301640	XDMR6-3X.1	BP-316	630-.1-.1-.1	DYR6111	IF Cathode Bypass
B	.1	600						IF Screen Bypass
C	.1	600						IF Plate Decoup.
26A	.1	600	956301640	XDMR6-3X.1	BP-316	630-.1-.1-.1	DYR6111	2nd Mixer Plate Decoup.
B	.1	600						IF Screen Bypass
C	.1	600						IF Plate Decoup.
27A	.1	600	956301640	XDMR6-3X.1	BP-316	630-.1-.1-.1	DYR6111	RF Bypass Pwr. Supply
B	.1	600						" " " "
C	.1	600						Fil. Bypass
28A	.1	600	956301640	XDMR6-2X.1	BP-216	630-.1-.1	DYR6011	2nd Mixer Screen Bypass
B	.1	600						RF Bypass Pwr. Supp.
29	.1	150	931000100	S-4-.1	TC-1	484-1	DT4P1	2nd Mixer Cathode Bypass
30	.01	600	931000500	S-6-01	TC-11	684-01	DT6S1	RF Bypass Pwr. Supply
31A	.1	600	956301640	XDMR6-3X.1	BP-316	630-.1-.1-.1	DYR6111	RF Gain Control Bypass
B	.1	600						IF Screen Bypass
C	.1	600						IF Plate Decoup.
32	.01	600	931000500	S-6-01	TC-11	684-01	DT6S1	1st Mixer Plate Decoup.
33A	.1	600	956301640	XDMR6-3X.1	BP-316	630-.1-.1-.1	DYR6111	1st Mixer Screen Bypass
B	.1	600						XTAL Osc. Plate Decoup.
C	.1	600						XTAL Osc. Screen Bypass
34A	.1	600	956301640	XDMR6-3X.1	BP-316	630-.1-.1-.1	DYR6111	RF Screen Bypass
B	.1	600						RF Plate Decoup.
C	.1	600						1st Mixer Cathode Bypass
35	.01	600	931000500	S-6-01	TC-11	684-01	DT6S1	RF Cathode Bypass
36	.01	600	931000500	S-6-01	TC-11	684-01	DT6S1	AVC Filter
37	2000		909000500	MW.5-22	1FM-22	1467-002	1W5D2	Tone Comp.
38	350		913008200	MO.5-34	1FM-34	1468-00035	5W5T4	Det.-RF Filter-Cer.
39	350		913008200	MO.5-34	1FM-34	1468-00035	5W5T4	" " " "
40	1		916419400					BFO Coupling Cer.
41	3		917100600					Fixed Trimmer Cer.
42	51	500	912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" " "
43	330	500	935012600					" " "
44	1		916419400					IF Coupling Cer.
45	5		913010000	MO.5-55	MS-55	1468-000005	5W5V5	" " "

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
100	2200Ω	1	RC30BF222K	BTA-2200	Red-Red-Red 2nd Mixer Plate Decoupling
101	330KΩ	½	RC20BF334K	BTS-330K	Or.-Or.-Yl. IF Primary Shunt
102	100KΩ	½	RC20BF104K	BTS-100K	Br.-Blk.-Yl. Selectivity Control
103	22KΩ	½	RC20BF223K	BTS-22K	Red-Red-Or. Selectivity Control
104	4700Ω	½	RC20BF472K	BTS-4700	Yl.-Vi.-Red Selectivity Control
105	330Ω	½	RC20BF331K	BW-½-330	Or.-Or.-Yl. 2nd IF Cathode
106	18KΩ	1	RC30BF183K	BTA-18K	Br.-Gray-Or. 2nd IF Screen Bleeder
107	22KΩ	1	RC30BF223K	BTA-22K	Red-Red-Or. 2nd IF Screen
108	2200Ω	1	RC30BF222K	BTA-2200	Red-Red-Red 2nd IF Plate Decoupling
109	10KΩ	½	RC20BF103K	BTS-10K	Br.-Blk.-Or. AVC Network
110	560Ω	½	RC20BF561K	BTS-560	Grn.-Blue-Br. 3rd IF Cathode
111	220KΩ	½	RC20BF224K	BTS-220K	Red-Red-Yl. Bias Network
112	330KΩ	1	RC30BF334M	BTA-330K	Or.-Or.-Yl. 3rd IF Screen Dropping
113	120KΩ	1	RC30BF124K	BTA-120K	Br.-Red-Yl. 3rd IF Plate Decoupling
114	470KΩ	½	RC20BF474K	BTS-470K	Yl.-Vi.-Yl. AVC Network
115	470KΩ	½	RC20BF474K	BTS-470K	Yl.-Vi.-Yl. " "
116	2200Ω	½	RC20BF222K	BTS-2200	Red-Red-Red AVC Tube Bias
117	220KΩ	1	RC30BF224K	BTA-220K	Red-Red-Yl. AVC Tube Bias
118	470KΩ	½	RC20BF474M	BTS-470K	Yl.-Vi.-Yl. Diode Load
119	10KΩ	½	RC20BF103K	BTS-10K	Br.-Blk.-Or. Diode RF Filter
120	47KΩ	½	RC20BF473M	BTS-47K	Yl.-Vi.-Or. Diode Load
121	330KΩ	½	RC20BF334M	BTS-330K	Or.-Or.-Yl. Limiter Filter
122	100KΩ	½	RC20BF104K	BTS-100K	Br.-Blk.-Yl. Limiter Filter
123	470KΩ	½	RC20BF474K	BTS-470K	Yl.-Vi.-Yl. Limiter Load
124	100KΩ	1	RC30BF104K	BTA-100K	Br.-Blk.-Yl. BFO Plate Load
125	330KΩ	1	RC30BF334K	BTA-330K	Or.-Or.-Yl. BFO Screen Dropping
126	1000Ω	½	RC20BF102M	BTS-1000	Br.-Blk.-Red AF Cathode
127	220KΩ	1	RC30BF224K	BTA-220K	Red-Red-Yl. AF Plate Load
128	1.2 Meg.	1	RC30BF125K	BTA-1.2 Meg.	Br.-Red-Grn. AF Screen Dropping
129	470KΩ	½	RC20BF474K	BTS-470K	Yl.-Vi.-Yl. Output Grid
130	330Ω	1	RC30BF331K	BTA-330	Or.-Or.-Br. Output Cathode
131	2200Ω	2	RC40BF222K	BT-2-2200	Red-Red-Red Output Transformer Shunt

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA: COLLINS PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
132	.100A	94Ω	3 Henries	11272	C-2303†	T20C54*		
133	.07A	300Ω	5 Henries	11273	C-1355#		C-2975	

†Drill one new mounting holes. *Drill new mounting holes. #Mount vertically.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDARSON PART No.	REPLACEMENT DATA: MERIT PART No.
134	117V AC	700V CT @ .5A	5.0V AC @ .100A	6.4V AC @ 2.0A @ 4.5A	11274	P-4080*	T22R32*	P-3153*

*Drill new mounting holes.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
135	3400Ω	3.5Ω 500Ω	270Ω	.5Ω 22Ω	11271		T22S46		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: COLLINS PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-115		
136	PM	3.9Ω	27100020C	Mod. P8-V		
	CONE DIA.	VC DIA.				
137	7½"	11/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	COLLINS PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
46	330	500	935012600					Fixed Trimmer
47	51	500	912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" "
48	51	500	912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" "
49	330	500	935012600					" "
50	1		916419400					IF Coupling Cer.
51	5		913010000	MO.5-55	MS-55	1468-000005	5W5V5	" " "
52	330	500	935012600					Fixed Trimmer
53	51	500	912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" "
54	100	500	935010700	MO.5-31	1FM-31	1468-0001	5W5T1	XTAL Osc. Coupling
55	350		913008100					Fixed Trimmer Cer.
56	150		913001700	MO.5-315	1FM-315	1468-00015	5W5T15	" " "
57	51		912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" " "
58	51		912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" " "
59	51		912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" " "
60	51		912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" " "
61	100	500	935010700	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Feedback
62	100	500	935010700	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling
63	620	500	935420300					Fixed Trimmer
64	250	500	912325310	MO.5-325	1FM-325	1468-00025	5W5T25	" "
65	100	500	935010700	MO.5-31	1FM-31	1468-0001	5W5T1	" "
66	51	500	912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" "
67	10	500	912410310	MO.5-41	MS-41	1468-00001	5W5Q1	" "
68	620	500	935420300					" "
69	250	500	912325310	MOS.5-325	1FM-325	1468-00025	5W5T25	" "
70	100	500	935010700	MO.5-31	1FM-31	1468-0001	5W5T1	" "
71	51	500	912029700	MOS.5-45	MS-45	1469-00005	5R5Q5	" "
72	10	500	912410310	MO.5-41	MS-41	1468-00001	5W5Q1	" "
198	100	500	935010700	MO.5-31	1FM-31	1468-0001	5W5T1	AVC Coupling

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	COLLINS PART No.	IRC PART No.	CLAROSTAT PART No.	
73A	500KΩ	½	376313200	D13-133	M-60-Z	Audio Gain Control
B	Shaft		Not Req.	A	Not Req.	Attach to 73A per instructions
74A	10KΩ	½	376403700	D16-116	M-30-V	RF Gain Control
B	Shaft		Not Req.	A	Not Req.	Attach to 74A per instructions
75A	1000Ω	½	376375400	D11-108	M-8-S	"S" Meter Sensitivity Control
B	Shaft		Not Req.	A	Not Req.	Attach to 75A per instructions
76A	500Ω	½	376375300	D11-103	M-5-S	"S" Meter zero adjust
B	Shaft		Not Req.	A	Not Req.	Attach to 76A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	COLLINS PART No.	IRC PART No.	
77	10KΩ	½	RC20BF103K	BTS-10K	Br.-Blk.-Or. AVC Network
78	220Ω	½	RC20BF221K	BW-½-220	Red-Red-Br. RF Cathode
79	68KΩ	1	RC30BF683K	BTA-68K	Blue-Gray-Or. RF Screen Dropping
80	10KΩ	1	RC30BF103A	BTA-10K	Br.-Blk.-Or. RF Plate Decoupling
81	2Ω			BW-2-2.2	Series Pilot Light
82	100KΩ	½	RC20BF104K	BTS-100K	Br.-Blk.-Yl. Crystal Oscillator Grid
83	470Ω	½	RC20BF471M	BTS-470	Yl.-Vi.-Br. Crystal Oscillator Cathode
84	470Ω	½	RC20BF471M	BTS-470	Yl.-Vi.-Br. Crystal Oscillator Cathode
85	22KΩ	1	RC30BF223K	BTA-22K	Red-Red-Or. Crystal Oscillator Screen Dropping
86	2200Ω	1	RC30BF222K	BTA-2200	Red-Red-Red Crystal Oscillator Plate Decoupling
87	330Ω	½	RC20BF331K	BW-½-330	Or.-Or.-Br. Crystal Oscillator Plate Decoupling
88	330KΩ	½	RC20BF334K	BTS-330K	Or.-Or.-Yl. 1st Mixer Injection Grid
89	100KΩ	½	RC20BF221K	BTS-100K	Br.-Blk.-Yl. 1st Mixer Grid
90	220Ω	½	RC20BF221K	BW-½-220	Red-Red-Br. 1st Mixer Cathode
91	15KΩ	1	RC30BF153K	BTA-15K	Br.-Grn.-Red 1st Mixer Screen Dropping
92	2200Ω	1	RC30BF222K	BTA-2200	Red-Red-Red 1st Mixer Plate Decoupling
93	10KΩ	½	RC20BF103K	BTS-10K	Br.-Blk.-Or. AVC Network
94	100KΩ	1	RC30BF104K	BTA-100K	Br.-Blk.-Yl. 1st IF Screen Dropping
95	2200Ω	1	RC30BF222K	BTA-2200	Red-Red-Red 1st IF Plate Decoupling
96	820Ω	½	RC20BF821K	BTS-820	Gray-Red-Br. 2nd Mixer Cathode
97	330Ω	½	RC20BF331K	BW-½-330	Or.-Or.-Br. 2nd Mixer Cathode
98	22KΩ	1	RC30BF223K	BTA-22K	Red-Red-Or. 2nd Mixer Screen Dropping
99	3300Ω	½	RC20BF332M	BTS-3300	Or.-Or.-Red Oscillator Decoupling

DATE 2/48 SET #34 FOLDER #464-4

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	COLLINS PART No.	MEISSNER PART No.	
138	Ant.Coil 80M	<1Ω	<1Ω	5031318002		
139	" " 40M		<1Ω	5031297001		
140	" " 20M		<1Ω	5031296001		
141	" " 15M		<1Ω	5031296001		
142	" " 11M		<1Ω	5031295001		
143	" " 10M		<1Ω	5031300001		
144	RF Coil 80M		<1Ω	5031319002		
145	" " 40M		<1Ω	5031297001		
146	" " 20M		<1Ω	5031296001		
147	" " 15M		<1Ω	5031295001		
148	" " 11M		<1Ω	5031295001		
149	" " 10M		<1Ω	5031300001		
	Crystal Coil					
150	" " 20M		<1Ω	5031299001		
151	" " 15M		<1Ω	5031299001		
152	" " 11M		<1Ω	5031298001		
153	" " 11M		<1Ω	5031298001		
154	" " 10M		<1Ω	5031298001		
155	" " 10M		<1Ω	5031298001		
156	Var.IF Coil	1Ω		5031317002		
157	" " "		1Ω	5031317002		
158	" " "	2Ω		5031294001		
159	" " "		2Ω	5031294001		
160	2nd Mixer "	1Ω		5031317002		
161	" " "		1Ω	5031317002		
162	" " "	2Ω		5031294001		
163	" " "		2Ω	5031294001		
164	Crystal Filt. Trans.	5.5Ω	1Ω	278005800		
165	Input IF		<1Ω	278005900		
166	Inter. IF	2Ω	2Ω	278002800		
167	Output IF	2Ω	2Ω	278002900		
168	BFO Trans.			278002700		

< - Equals less than.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					COLLINS PART No.		
169	Bayonet	6-8	0.25	Blue	262-3230-00		Type 44 "S" Meter Dial
170	Midget Flange	6	0.2		262-0023-00		Type 328 80 " "
171	" "	6	0.2		262-0023-00		Type 328 80 " "
172	" "	6	0.2		262-0023-00		Type 328 40 " "
173	" "	6	0.2		262-0023-00		Type 328 40 " "
174	" "	6	0.2		262-0023-00		Type 328 20 " "
175	" "	6	0.2		262-0023-00		Type 328 20 " "
176	" "	6	0.2		262-0023-00		Type 328 15 " "
177	" "	6	0.2		262-0023-00		Type 328 15 " "
178	" "	6	0.2		262-0023-00		Type 328 11 " "
179	" "	6	0.2		262-0023-00		Type 328 11 " "
180	" "	6	0.2		262-0023-00		Type 328 10 " "
181	" "	6	0.2		262-0023-00		Type 328 10 " "
182	" "	6	0.2		262-0023-00		Type 328 80,40,20,15 Meter Dial
183	" "	6	0.2		262-0023-00		Type 328 11,10 Meter Dial

MISCELLANEOUS

ITEM No.	PART NAME	COLLINS PART No.	NOTES
184	Switch Section	269102000	Band (RF, Mixer, Variable IF, 2nd Mixer, Crystal)
	" "	269102100	Band (Pilot Light, Harmonic Selector)
185	Switch		Limiter
186	"	259003300	XTAL Filter (Selectivity)
187	"	259003400	Off-Fil.-B+
188	"	259005400	MAN-AVC-CW
189	Crystal	291292300	80M
190	"	291292500	40M
191	"	291292400	20M
192	"	291292800	15M
193	"	291292600	11M
194	"	291292700	10M
195	"	291292200	Filter
196	Fuse	264407000	3AG
197	Phone Jack	360000400	Receptacle
	Trimmer	917100700	A8,A9,A10,A11,A24,A25,A28,A29,A32,A33,A48,A49,A50, A51,A52,A53
	"	917100600	A16,A17,A18,A19,A36,A37,A40,A41,A44,A45.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The IF Frequency for this receiver is the exact frequency of the crystal filter and will be within 1 or 2KC of 500KC. Turn receiver on and connect output of signal generator to grid cap of 6L7. Set "MAN-AVC-CW" switch on AVC and turn selectivity switch to #4 position. Tune signal generator to approximately 500KC and adjust for maximum deflection on "S" meter. This is the exact frequency of the crystal therefore the signal generator should not be changed during the IF alignment in Step 1.

To set pointer turn tuning control completely counter-clockwise, then clockwise until the two zeros on the vernier dial coincide with the vertical red reference line. Set pointer to last reference mark at low frequency end of dial.

RF Gain control should be completely clockwise, output of signal generator should be attenuated to a maximum reading of "S" 9 on the "S" meter. Use insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to grid cap. of 6L7. Low side to chassis.	See pre-alignment notes.	80 meter band.	High freq. end of dial.	"S" meter (see pre-alignment notes)	A1,A2, A3,A4, A5	Set selectivity switch to "0" position adjust for maximum deflection of "S" meter attenuate output of signal generator to keep meter below an "S" 9 reading.
2	.1 MFD.	"	Detune signal generator to low freq. side until "S" meter reading drops 1 "S" unit from peak reading.	"	"	"	A6	Set selectivity switch to #1 position. Phasing control should be lined up with index line. Adjust for maximum deflection of "S" meter attenuating sig. gen. output to maintain meter reading below "S" 9 reading. Check correct alignment by switching selectivity switch from #1 position to "0" position. "S" meter reading should not change appreciably.
3	.1 MFD.	"	Set to exact crystal freq. as in Step 1.	"	"	"	A7	Set "MAN-AVC-CW" switch to "CW". Set selectivity switch to #4 position. BFO control should be aligned with reference line under the letters BFO. Adjust for zero beat. Rotate BFO control 180° to either side of zero reference line. The tone should change an equal amount either side. If not rotate control until highest pitch is obtained. Loosen set screw and turn knob 90° left or right of zero reference line. Tighten set screw and align control to zero reference line. Adjust A7 for zero beat. Check to see if knob is rotated 180° on shaft per Step 4.
4	400Ω carbon resistor	High side to term. 1 of ant. terminal strip. Low side to chassis.	3700KC	"	Tune for zero beat with BFO control aligned with zero reference line.	"		Turn BFO knob to +1. Retune receiver to zero beat. If dial indicates 1KC less than previous reading the knob is set correctly. If dial indicates 1KC more loosen set screw and rotate knob 180°. Turn selectivity control to "0" position.
5	.1 MFD.	High side to Pin 8 (grid) 6SA7. Low side to chassis.	2.5MC	"	3.2MC	"	A8,A9, A10,A11	Turn "MAN-AVC-SW" switch to "AVC". Adjust for maximum deflection.
6	.1 MFD.	"	1.5MC	"	4.2MC	"	A12,A13 A14,A15	Adjust for maximum deflection. Repeat Steps 5 and 6 until no further improvement can be made.
7	.1 MFD.	"	5.5MC	10 meter Band	28.0MC	"	A16,A17, A18,A19	Adjust for maximum deflection.
8	.1 MFD.	"	3.5MC	"	30.0MC	"	A20,A21, A22,A23	Adjust for maximum deflection. Repeat Steps 7 and 8 until no further improvement can be made.
9	400Ω carbon res.	High side to terminal 1 of Ant. Term. Strip Low side to chassis.	Approx. 4.1MC. Adjust for maximum deflection on "S" meter.	80 meter Band	4.1MC	"	A24,A25	Adjust for maximum deflection.
10	"	"	Approx. 3.3MC. Adjust for maximum deflection	"	3.3MC	"	A26,A27	Adjust for maximum deflection. Repeat Steps 9 and 10 until no further improvement can be made.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
11	"	"	Approx. 7.7MC. Adjust for maximum deflection.	40 meter Band	7.7MC	"	A28,A29	Adjust for maximum deflection.
12	"	"	Approx. 6.9MC. Adjust for maximum deflection.	"	6.9MC	"	A30,A31	Adjust for maximum deflection. Repeat Steps 11 and 12 until no further improvement can be made.
13	"	"	Approx. 14.9MC. Adjust for max. deflection	20 meter Band	14.9MC	"	A32,A33	Adjust for maximum deflection.
14	"	"	Approx. 14.1MC. Adjust for max. deflection	"	14.1MC	"	A34,A35	Adjust for maximum deflection. Repeat Steps 13 and 14 until no further improvement can be made.
15	"	"	Approx. 21.7MC. Adjust for max. deflection	15 meter Band	21.7MC	"	A36,A37	Adjust for maximum deflection.
16	"	"	Approx. 20.9MC. Adjust for max. deflection.	"	20.9MC	"	A38,A39	Adjust for maximum deflection. Repeat Steps 15 and 16 until no further improvement can be made.
17	"	"	Approx. 27.9MC. Adjust for max. deflection	11 meter Band	27.9MC	"	A40,A41	Adjust for maximum deflection.
18	"	"	Approx. 26.1MC. Adjust for max. deflection.	"	26.1MC	"	A42,A43	Adjust for maximum deflection. Repeat Steps 17 and 18 until no further improvement can be made.
19	"	"	Approx. 29.9MC. Adjust for max. deflection	10 meter Band	29.9MC	"	A44,A45	Adjust for maximum deflection.
20	"	"	Approx. 28.1MC. Adjust for max. deflection	"	28.1MC	"	A46,A47	Adjust for maximum deflection. Repeat Steps 19 and 20 until no further improvement can be made.

CRYSTAL FREQUENCY ADJUSTMENT

If the vernier dial calibration is correct for the majority of the bands but incorrect for one or two of the others use the following instructions.

This adjustment should only be made after the 500KC IF channel and beat frequency oscillator have been accurately adjusted as in Steps 1, 2, 3 and 4.

If a secondary frequency standard is available set it for 100KC operation and calibrate it against WWV.

Connect output of signal generator to antenna terminal board and tune in a harmonic of the 100KC signal in the band which is off calibration. 3.7MC for 80 meters, 7.3MC for 40 meters, 14.5MC for 20 meters, 21.3MC for 15 meters, 27MC for 11 meters, and 29MC for 10 meters. Set "MAN-AVC-CW" switch on "CW" and align BFO knob with zero reference line. Adjust crystal padders as listed below for the various bands, A48 for 80 meters, A49 for 40 meters, A50 for 20 meters, A51 for 15 meters, A52 for 11 meters and A53 for 10 meters, to pull the frequency of the crystal to the correct dial setting on the vernier dial.

If all the bands are off an equal amount and it is impossible to pull the crystals to the dial setting, align all the crystals on a frequency that can be reached, ie, ½KC or so higher or lower on each band, then loosen the set screws in the flexible coupler to the VFO and set the dial on the correct figure after which, turn the VFO shaft until the signal is zero beat. Then tighten set screws.

If no secondary frequency standard is available, an ordinary signal generator can be used. Tune the signal generator to 500KC and beat 30th harmonic with WWV at 15MC. The same procedure outlined above can be followed using the 500KC harmonics of the signal generator. Useful harmonics are 4MC for 80 meters, 7MC for 40 meters, 15MC for 20 meters, 21MC for 15 meters, 27MC for 11 meters, 29MC for 10 meters.

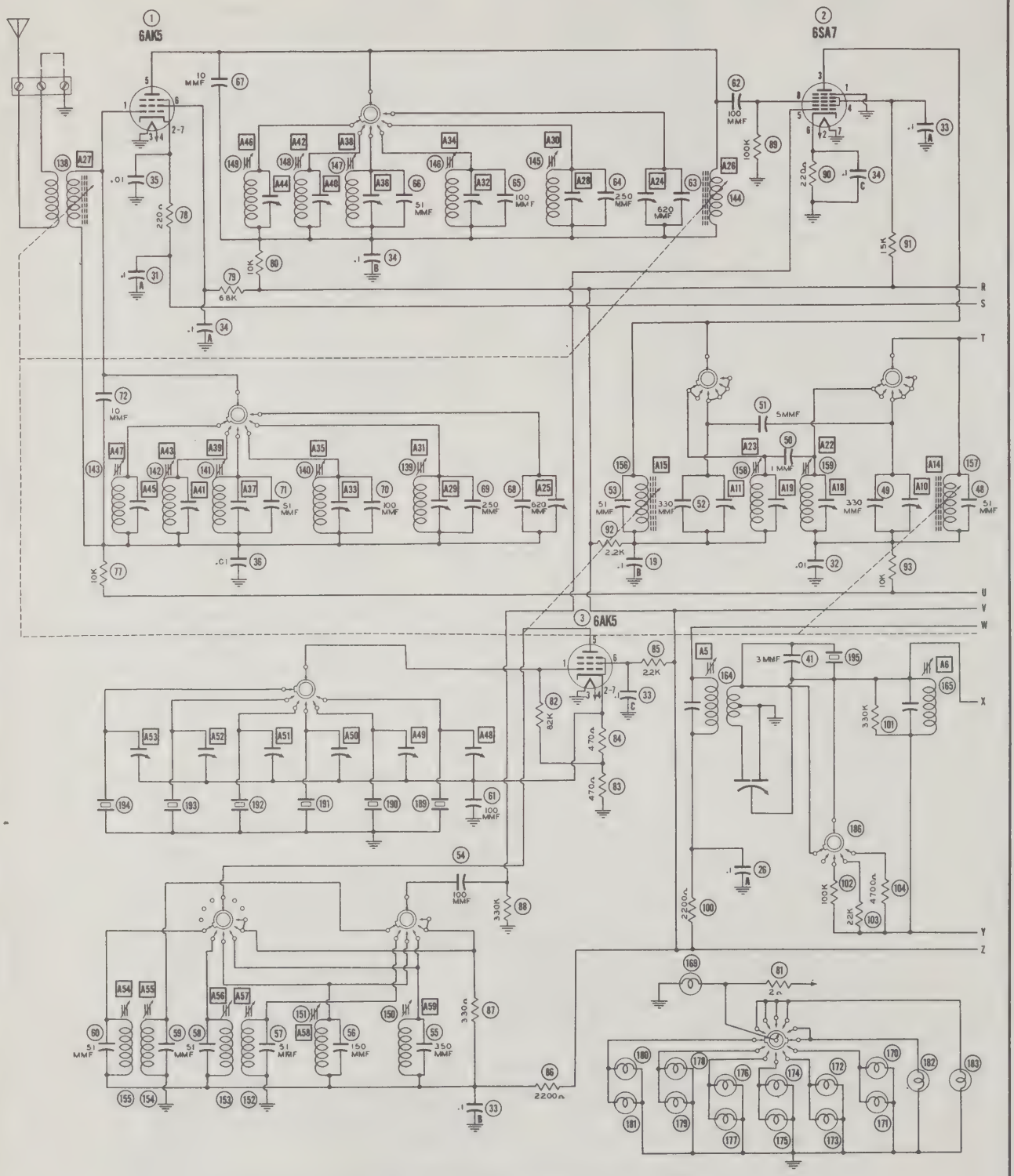
CRYSTAL HARMONIC ADJUSTMENT

It is unlikely that there will ever be a need for adjusting the crystal harmonic selector circuits since this adjustment is not critical, however, in event some component has been replaced, they may be adjusted in the following manner.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
21				10 meter		DC probe of VTVM to Pin 5 of 6SA7. Common lead to chassis.	A54, A55	Short Pin 6 of 6SA7 to chassis. Adjust for maximum deflection.
22				11 meter		"	A56, A57	Adjust for maximum deflection.
23				15 meter		"	A58	"
24				20 meter		"	A59	"

There is no adjustment necessary for 40 and 80 meters. CAUTION: Under no circumstances, while making the above adjustments should A48, A49, A50, A51, A52 or A53 be changed as this will change the frequency of the crystal.

Should trouble develop in the variable frequency oscillator the unit should be returned to the factory for servicing.



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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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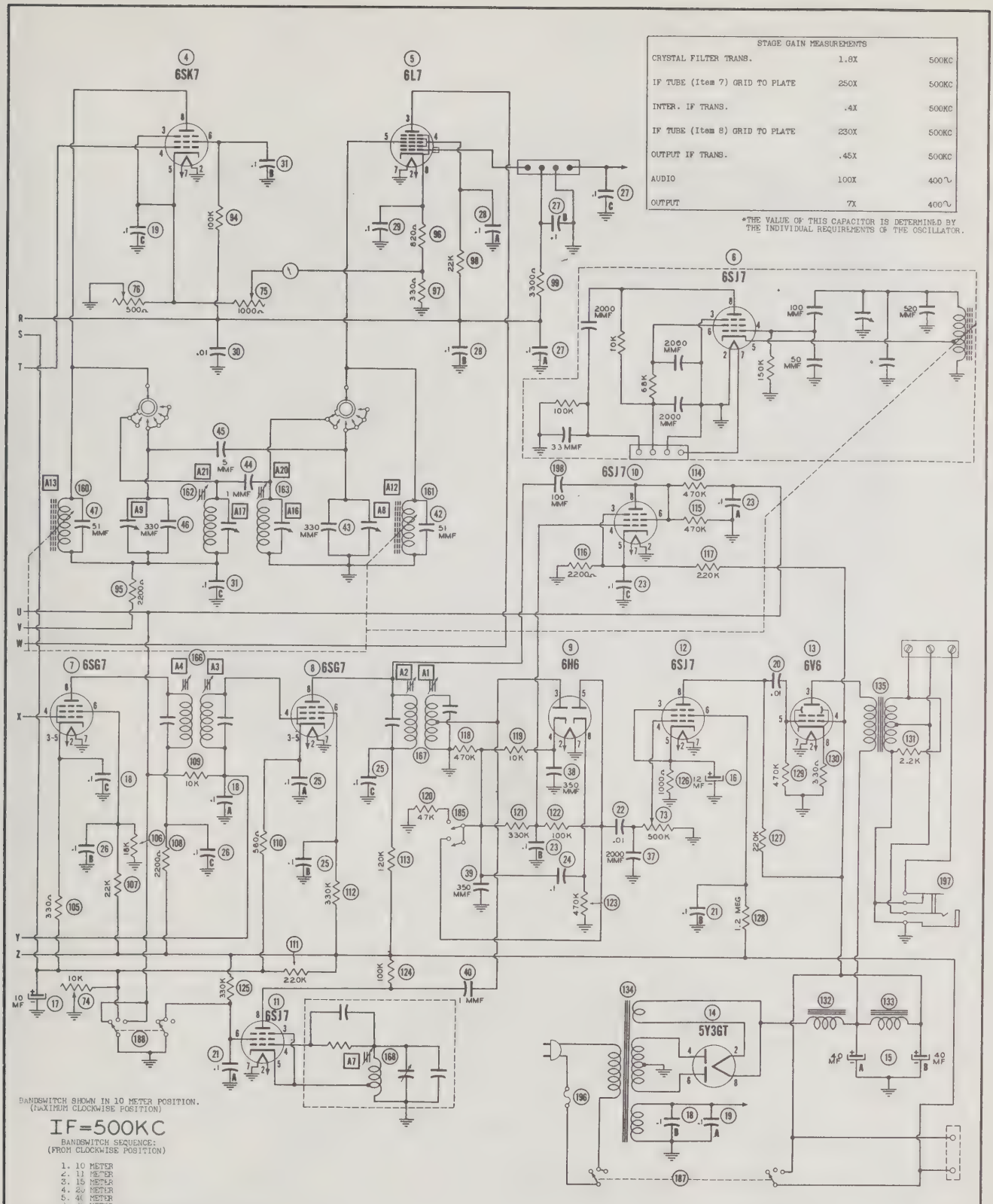

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. MAN-AVC-CW switch on "MAN" position. Selectivity switch on "0".

VOLTAGE AND RESISTANCE READINGS TAKEN WITH:

BANDSWITCH IN 80 METER POSITION
AVC ON
LIMITER IN
SELECTIVITY AT 0
B+ SWITCH ON

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6AK5	0V.	1.7VDC	0V.	6.6VAC	180VDC	115VDC	1.7VDC	-	-
2	6SA7	0V.	6.6VAC	230VDC	110VDC	-.5VDC§	2.7VDC	0V.	0V.	-
3	6AK5	-6VDC§	9.5VDC	0V.	6.6VAC	215VDC	175VDC	9.5VDC	-	-
4	6SA7	0V.	0V.	2.4VDC	0V.	2.4VDC	75VDC	6.6VAC	225VDC	-
5	6L7	0V.	6.6VAC	240VDC	130VDC	0V.	2.3VDC	0V.	8VDC	0V.
6	6SJ7	0V.	0V.	0V.	-5VDC§	0V.	150VDC	6.6VAC	165VDC	-
7	6SG7	0V.	6.6VAC	1.8VDC	0V.	1.8VDC	95VDC	0V.	230VDC	-
8	6SG7	0V.	6.6VAC	1.3VDC	0V.	1.3VDC	50VDC	0V.	65VDC	-
9	6H6	0V.	6.6VAC	0V.	.5VDC	0V.	235VDC	0V.	.3VDC	-
10	6SJ7	0V.	0V.	2.2VDC	0V.	2.2VDC	0V.	6.6VAC	0V.	-
* 11	6SJ7	0V.	0V.	0V.	-6VDC§	0V.	70VDC	6.6VAC	65VDC	-
12	6SJ7	0V.	6.6VAC	1VDC	0V.	1VDC	25VDC	0V.	70VDC	-
13	6V6GT	0V.	6.6VAC	250VDC	240VDC	0V.	240VDC	0V.	12VDC	-
14	5Y3GT	0V.	265VDC	0V.	370VAC	0V.	370VAC	0V.	265VDC	-

§TAKEN WITH VACUUM TUBE VOLTMETER.

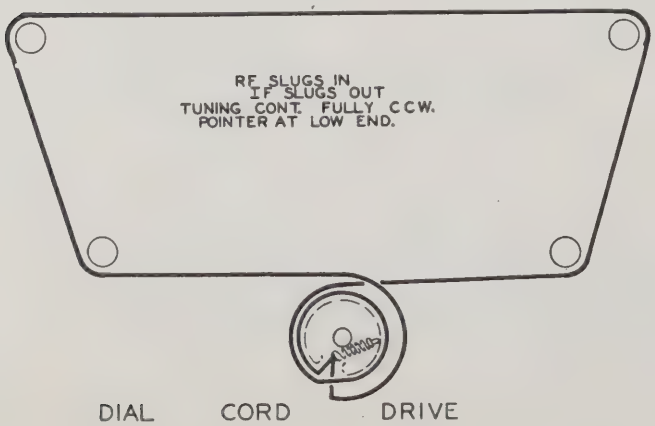
*TAKEN IN CW POSITION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6AK5	1 Meg.	230Ω	0Ω	.1Ω	40KΩ	100KΩ	230Ω	-	-
2	6SA7	0Ω	.1Ω	32KΩ	45KΩ	350KΩ	220Ω	0Ω	100KΩ	-
3	6AK5	110KΩ	850Ω	0Ω	.1Ω	32KΩ	55KΩ	850Ω	-	-
4	6SK7	0Ω	0Ω	200Ω	1 Meg.	200Ω	130KΩ	.1Ω	32KΩ	-
5	6L7	0Ω	.1Ω	32KΩ	50KΩ	4Ω	200Ω	0Ω	940Ω	100KΩ
6	6SJ7	0Ω	0Ω	0Ω	150KΩ	0Ω	100KΩ	.1Ω	43KΩ	-
7	6SG7	0Ω	.1Ω	350Ω	1 Meg.	350Ω	50KΩ	0Ω	32KΩ	-
8	6SG7	0Ω	.1Ω	500Ω	1 Meg.	500Ω	360KΩ	0Ω	160Ω	-
9	6H6	0Ω	.1Ω	1.5Ω	510KΩ	950KΩ	130KΩ	0Ω	480KΩ	-
10	6SJ7	0Ω	0Ω	2000Ω	850KΩ	2000Ω	500KΩ	.1Ω	500KΩ	-
11	6SJ7	0Ω	0Ω	.2Ω	100KΩ	.2Ω	360KΩ	.1Ω	130KΩ	-
12	6SJ7	0Ω	.1Ω	1KΩ	500KΩ	1KΩ	1.2 Meg.	0Ω	250KΩ	-
13	6V6GT	0Ω	.1Ω	30KΩ	30KΩ	510KΩ	30KΩ	0Ω	310Ω	-
14	5Y3GT	INF.	30KΩ	INF.	120Ω	INF.	110Ω	INF.	30KΩ	-

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - RF and AF gain controls at maximum, no signal applied for voltage measurements.



CROSLEY
MODEL 58TK

CROSLEY
MODEL 58TK

CROSLEY MODEL 58TK

TRADE NAME	Crosley, Model 58TK
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Ant.
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1600KC RATING .27 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	200MMF.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2,	Adjust for maximum output.
2		Loop	1620KC	"	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A4	Adjust for maximum output.

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DATE 2/48 SET #34 FOLDER #484-5

PARTS LIST AND DESCRIPTIONS

CROSLEY MODEL 58TK

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		CROSLEY PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	CROSLEY PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	50	150	B-137073-17	DSB-5030-150	TA-530	PRSA150-30-50	EDL5315	Filter-Red
B	30	150						" -Blue
7	.05	200	39001-17	MPH-4-05	TC-15	484-05	DT2S5	Line Filter
8	.02	200	39001-80	S-4-02	TC-12	484-02	DT2S2	Output Plate Bypass
9	.02	200	39001-80	S-4-02	TC-12	484-02	DT2S2	Audio Coupling
10	.00025	600	39001-73	S-6-00025	TC-325	1468-00025	DT6T25	AF Plate Bypass
11	.003	600	39001-76	S-6-003	TC-23	684-003	DT6D3	Audio Coupling
12	.00025	600	39001-73	S-6-00025	TC-325	1468-00025	DT6T25	IF Coupling
13	.00025	600	39001-73	S-6-00025	TC-325	1468-00025	DT6T25	Diode RF Filter
14	.05	200	39001-17	S-4-05	TC-15	484-05	DT2S5	AVC Filter
15	.01	200	39001-13	S-4-01	TC-11	484-01	DT2S1	Conv. Cathode Bypass
16	.08	200	39001-19	S-2-1	TC-1	484-.1	DT2P1	Line Isolation

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	CROSLEY PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	1 Meg.	½	B-139635	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	41	SW-A	" " " " "

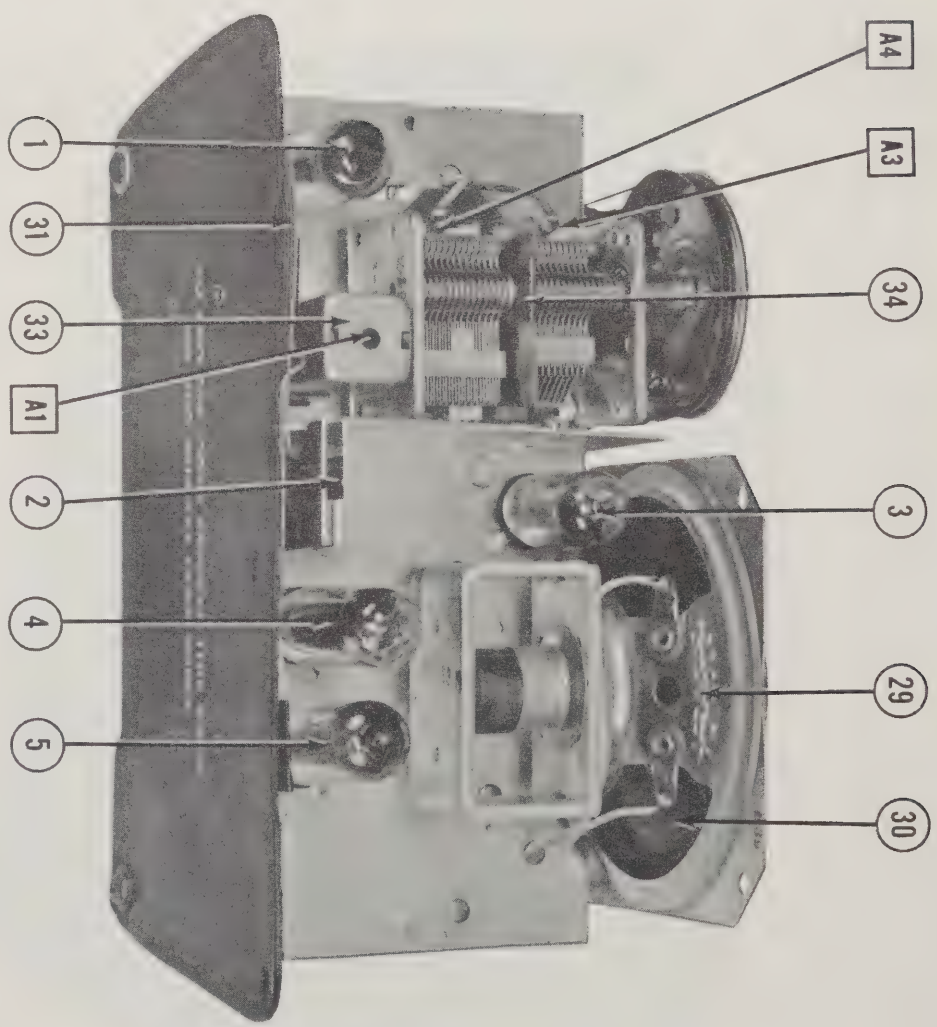
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	CROSLEY PART No.	IRC PART No.	
18	22KΩ	½	39373-60	BTS-22K	Red-Red-Or. Oscillator Grid
19	100Ω	½	39373-14	BW-½-100	Br.-Blk.-Br. Converter Cathode
20	3.3 Meg.	½	39373-100	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
21	10 Meg.	½	39373-107	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
22	220KΩ	½	39373-80	BTS-220K	Red-Red-Yl. AF Plate Load
23	470KΩ	½	39373-87	BTS-470K	Yl.-Vi.-Yl. Output Grid
24	100Ω	½	39373-14	BW-½-100	Br.-Blk.-Br. Output Cathode
25	1200Ω	1	39373-144	BTA-1200	Br.-Red-Red Filter
26	6800Ω	1	39373-161	BTA-6800	Blue-Gray-Yl. IF Plate Load
27	47KΩ	½	39373-67	BTS-47K	Yl.-Vi.-Or. Diode Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CROSLEY PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
28	2100Ω	3.7Ω	230Ω	1Ω	B-137723	A-3876*	T2S45*	A-3028*	*File mounting holes to fit replacement.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

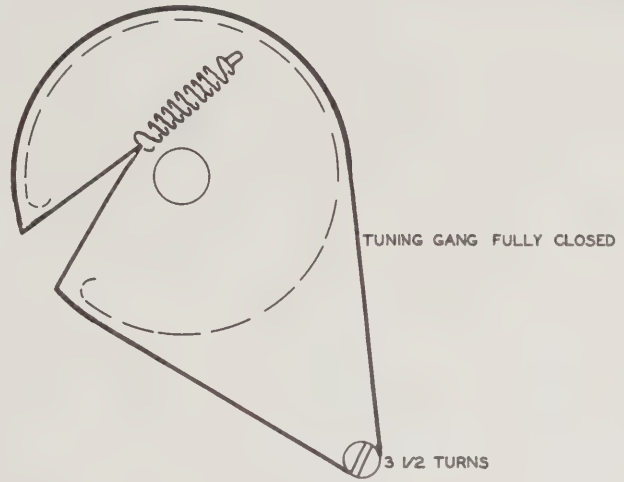
ITEM No.	RATINGS		REPLACEMENT DATA: CROSLEY PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-113		
29	PM	3.7Ω	AD-138459	Mod. P4-X	4A07	
	CONE DIA.	VC DIA.				
30	4"	1/2"	NOT READILY	REPLACEABLE-USE COMPLETE SPEAKER UNIT		

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: CROSLEY PART No.	MEISSNER PART No.	
31	Loop Ant.		1Ω	AC-139873		
32	Osc. Coil	.5Ω	5.5Ω	AW-142640	14-1040†	†Add 50MMFD from osc. grid to high side tuning cap.
33	Input IF	22Ω	21.5Ω	C-139919		

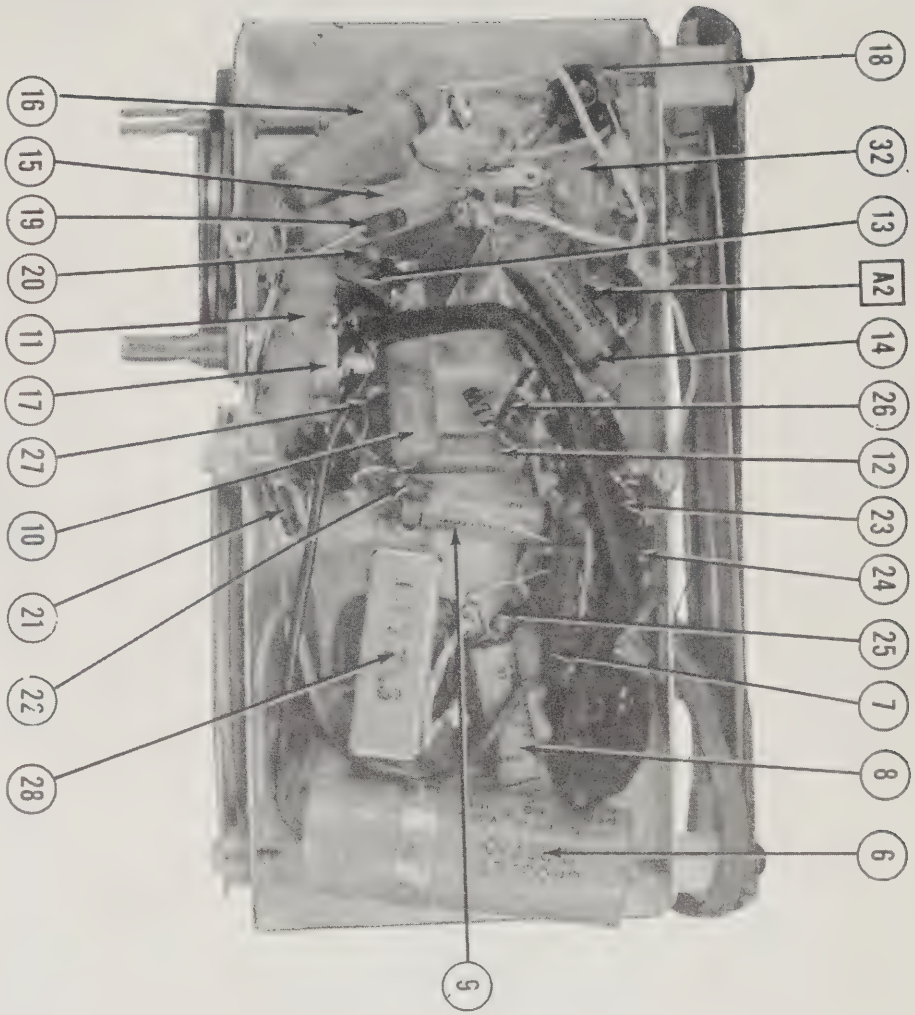
MISCELLANEOUS

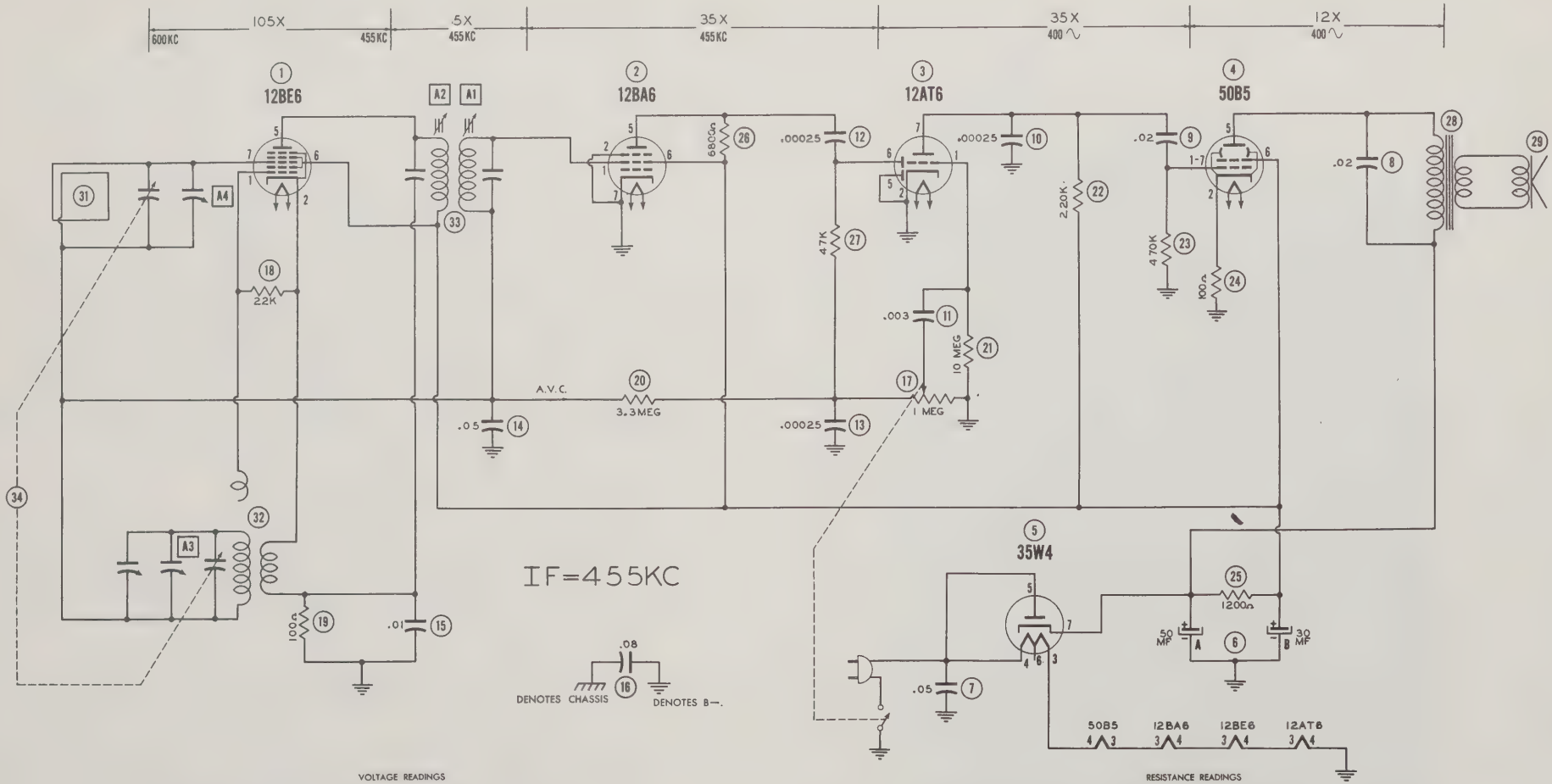
ITEM No.	PART NAME	CROSLEY PART No.	NOTES
34	2 Gang Var. Cap	B-137073-17	(33-460MMF, 37-200MMF)
	Dial	B-139898	
	Knob	W-139925	
	Pointer Disc.	W-139899	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-7VDC§	.9VDC	24VAC	12VAC	92VDC	92VDC	-.4VDC
2	12BA6	-.4VDC	0V.	36VAC	24VAC	24VDC	92VDC	0V.
3	12AT6	-.6VDC	0V.	12VAC	0V.	0V.	-.3VDC	55VDC
4	50B5	0V.	5VDC	36VAC	83VAC	120VDC	92VDC	0V.
5	35W4	0V.	92VDC	83VAC	117VAC	117VAC	110VAC	125VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	25KΩ	102Ω	23Ω	12.5Ω	500KΩ	500KΩ	4 Meg.
2	12BA6	4 Meg.	0Ω	35Ω	23Ω	500KΩ	500KΩ	0Ω
3	12AT6	10 Meg.	0Ω	12.5Ω	0Ω	0Ω	1 Meg.	720KΩ
4	50B5	470KΩ	100Ω	35Ω	82.5Ω	500KΩ	500KΩ	470KΩ
5	35W4	INF.	500KΩ	82Ω	116Ω	116Ω	110Ω	500KΩ

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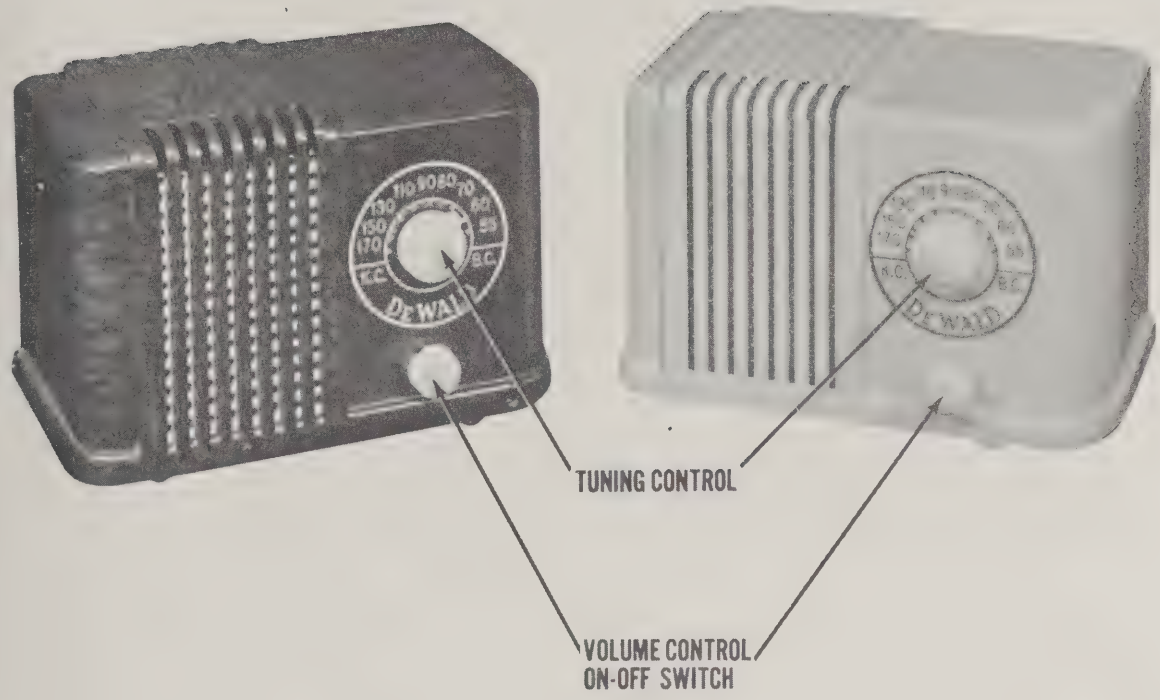
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

484-5

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DEWALD MODEL
B-401



DEWALD MODEL
B-401

DEWALD MODEL B-401

TRADE NAME	Dewald, Model B-401
MANUFACTURER	Dewald Radio Mfg. Corp., 35-28 49th St., Long Island City, N.Y.
TYPE SET	AC-DC Operated TRF Receiver
TUBES (FOUR)	Types, 12BA6 RF Amp., 12AT6 Det.-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1700KC RATING .21 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

With receiver in cabinet adjust tuning knob to last reference mark with tuning cap. fully closed. Open tuning cap. to the 1500KC reference mark and remove receiver from cabinet without disturbing position of tuning cap. Then follow alignment procedure below.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	50 MMFD	High side to ant. coil lug to which ant. hank is attached. Low side to B-.	1500KC	1500KC (See prealignment notes)	Across voice coil	A1	Adjust for maximum output.
2	50 MMFD	"	"	"	"	A2	Adjust for maximum output. Repeat Steps 1 & 2 until no further improvement can be made.

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DATE 2/48 SET #34 FOLDER #484-6

PARTS LIST AND DESCRIPTIONS

DEWALD MODEL B-401

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DEWALD PART No.	STANDARD REPLACEMENT		
1	RF Amp.	12BA6	12BA6	7BK	
2	Det.-AF	12AT6	12AT6	7BT	
3	Power Output	50B5	50B5	7BZ	
4	Rectifier	35W4	35w4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DEWALD PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5A	30	150		DSB-2x30-150	TA-330	PRSA150-30-30	EZ3315	Filter - Yl.
B	30	150						" - Red
6	.05	400		MPH-4-05	TC-15	484-05	DT4S5	Line Filter
7	.02	400		S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
8	.01	400		S-4-01	TC-11	484-01	DT4S1	Audio Coupling
9	.005	600		S-6-005	TC-25	684-005	DT6D5	RF Coupling
10	.05	400		S-4-05	TC-15	484-05	DT4S5	RF Cathode Bypass
11	.01	400		S-4-01	TC-11	484-01	DT4S1	Ext. Ant. Coupling
12	100			MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	CLAROSTAT PART No.	
13A	25KΩ			D11-120	M-40-S	Volume Control
B	Shaft			A	Not Req.	Attach to 13A per instructions
C	Switch			41	SW-A	" " " " "

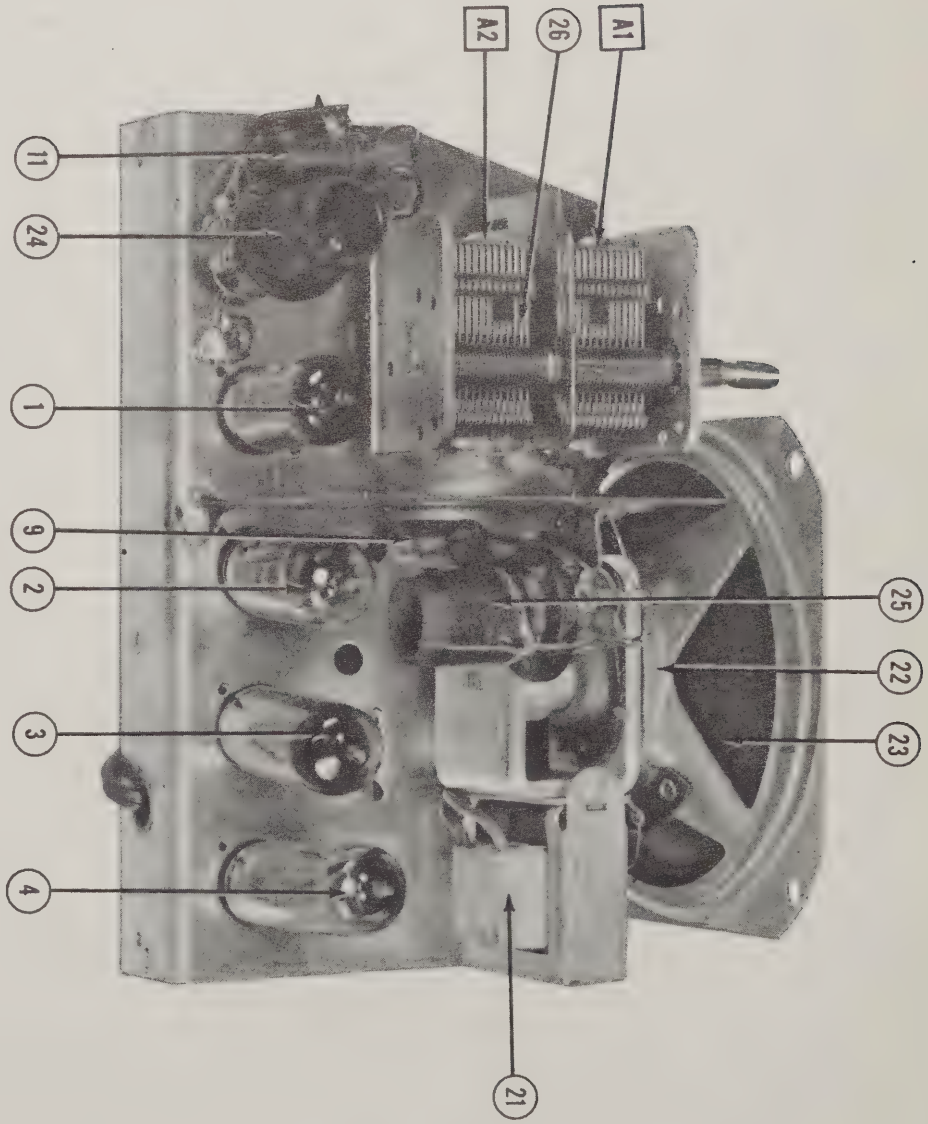
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	
14	220Ω	½		BW-½-220	Red-Red-Br. RF Cathode
15	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
16	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
17	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
18	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
19	4700Ω	½		BTS-4700	Yl.-Vi.-Red Filter
20	75Ω	3		AB-75	Vi.-Grn.-Blk. Line Dropping

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DEWALD PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
21	2500Ω	4.0Ω	160Ω	.5Ω		A-3876*	T22S45*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: DEWALD PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
22	FIELD PM	VC IMP. 4.0Ω	7000		4A07$	$Drill new mounting holes.
23	CONE DIA. 3-15/16"	VC DIA. 9/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

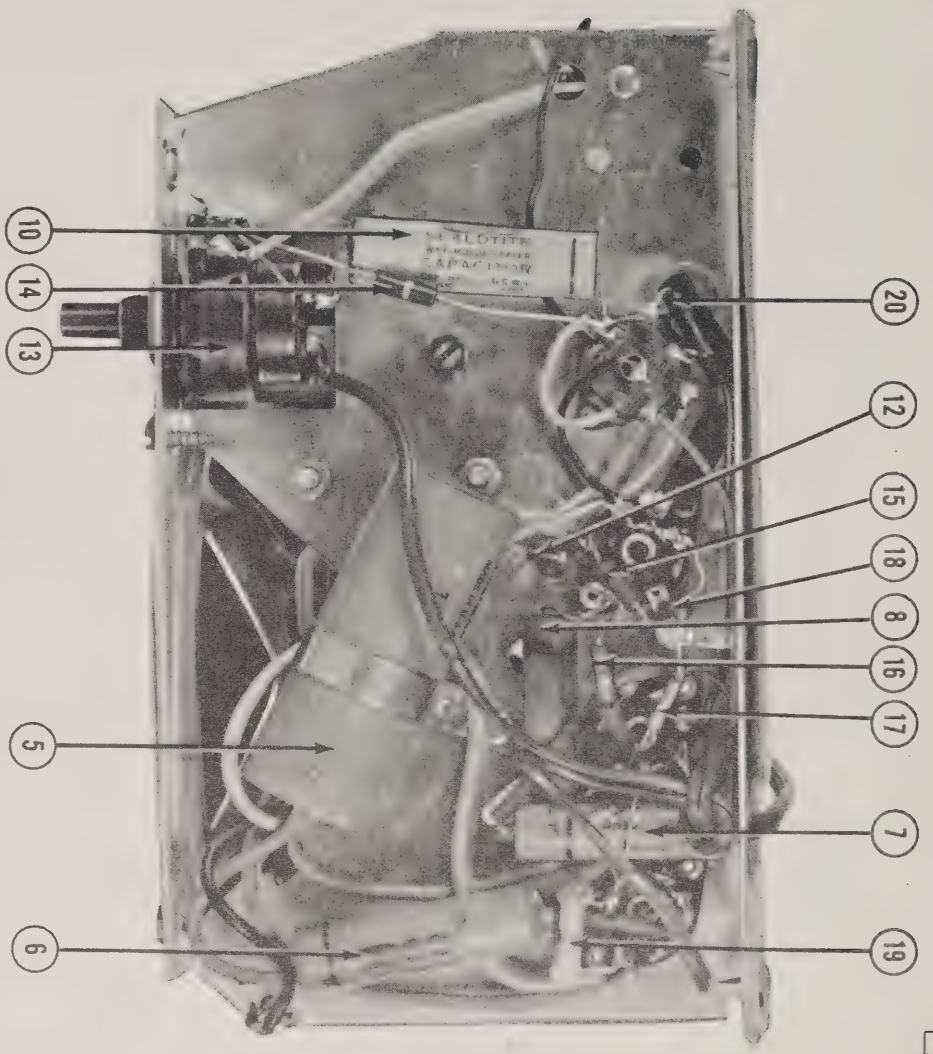
R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: MEISSNER PART No.
24	Ant. Coil	.4Ω	4.9Ω		14-1026
25	RF Coil	82Ω	5Ω		14-1027

MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
26	2 Gang Var. Cap.		(17-369MMF) each section

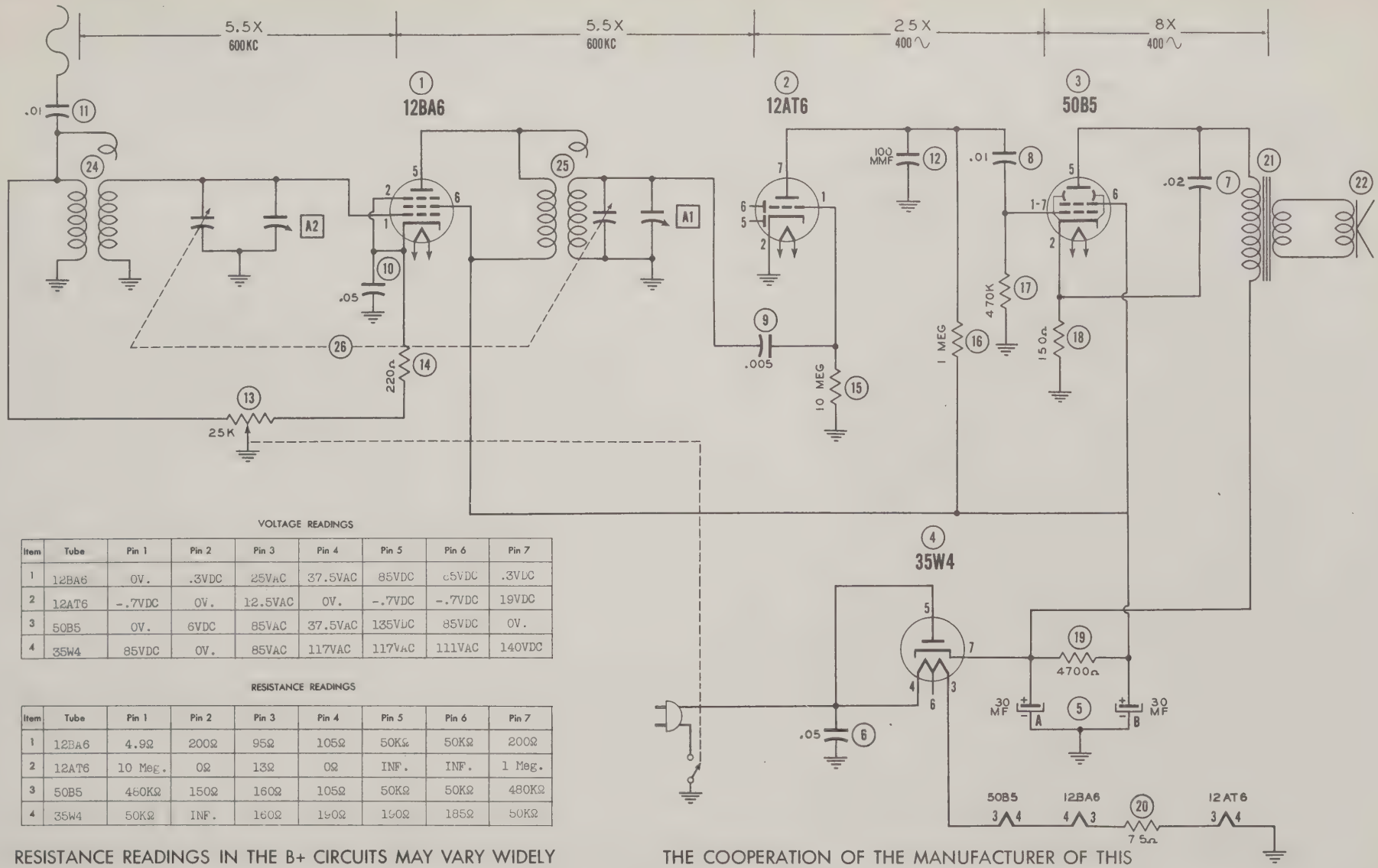
CHASSIS—BOTTOM VIEW



DATE 2/48 SET #34 FOLDER #484-6

DEWALD MODEL B-401

DEWALD MODEL B-401



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BA6	0V.	.3VDC	25VAC	37.5VAC	85VDC	85VDC	.3VDC
2	12AT6	-.7VDC	0V.	12.5VAC	0V.	-.7VDC	-.7VDC	19VDC
3	50B5	0V.	6VDC	85VAC	37.5VAC	135VDC	85VDC	0V.
4	35W4	85VDC	0V.	85VAC	117VAC	117VAC	111VAC	140VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BA6	4.9Ω	200Ω	95Ω	105Ω	50KΩ	50KΩ	200Ω
2	12AT6	10 Meg.	0Ω	13Ω	0Ω	INF.	INF.	1 Meg.
3	50B5	460KΩ	150Ω	160Ω	105Ω	50KΩ	50KΩ	480KΩ
4	35W4	50KΩ	INF.	160Ω	190Ω	190Ω	185Ω	50KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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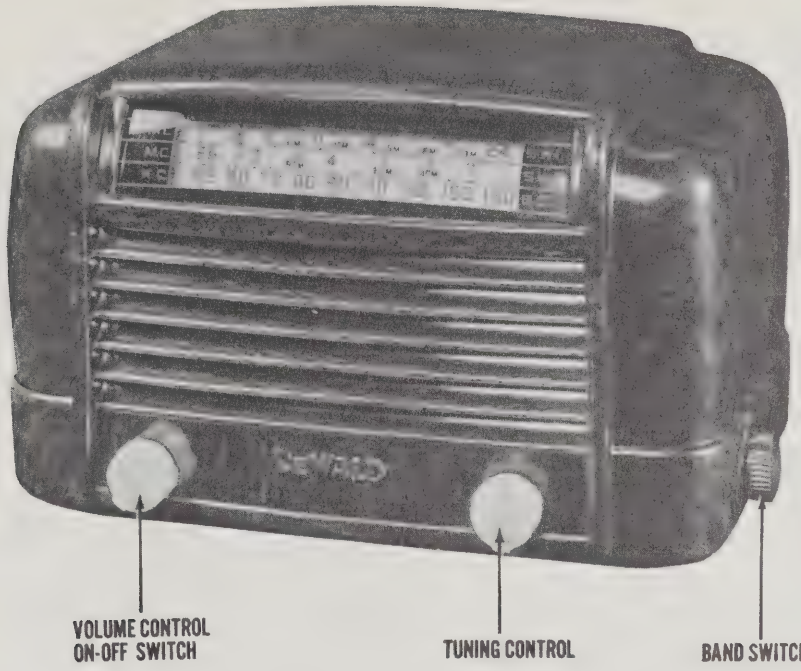
484-6

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DEWALD
MODEL B-510



DEWALD
MODEL B-510

DEWALD MODEL B-510

TRADE NAME	Dewald, Model B-510
MANUFACTURER	Dewald Radio Mfg. Corp., 35-28 49th St., Long Island City, N.Y.
TYPE SET	AC-DC Operated Multi-Band Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC — RATING .22 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1650KC — **SHORT WAVE** 2.5-7.5MC, 6.8-25MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	200MMFD	High side to ext. ant. lead. Low side to chassis.	455KC	BC (fully counter-clock-wise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output
2	200MMFD	"	25MC	SW 2 (fully clock-wise)	"	"	A5	Adjust for maximum output. Tune sig. gen. to 25.91 MC. If signal is not heard retune sig. gen. to 25MC and open trimmer to next peak. Adjust for maximum output and recheck for image.
3	200MMFD	"	23MC	"	Tune for maximum out-put.	"	A6	Rock tuning cap. and ad-just for maximum output.
4	200MMFD	"	7.5MC	SW 1 (center posi-tion)	Tuning cap. fully open.	"	A7	Rock tuning cap. and ad-just for maximum output. Check for image as in Step 2 tuning sig. gen. to 8.4MC.
5	200MMFD	"	7MC	"	Tune for max-imum output.	"	A8	Adjust for maximum output
6	200MMFD	"	1650KC	BC	Tuning cap. fully open.	"	A9	" " " "
7	200MMFD	"	600KC	"	Tune for max-imum output.	"	A10	Rock tuning cap. and ad-just for maximum output. Repeat Steps 6 & 7 until no further improvement can be made.

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DATE 2/48 SET #34 FOLDER #484-7

PARTS LIST AND DESCRIPTIONS

DEWALD MODEL B-510

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		DEWALD PART No.	STANDARD REPLACEMENT		
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5B	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	DEWALD PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	30	150	2002	DSB-2x30-150	TA-330	PRSA150-30-30	EZ3315	Filter - Yl.
B	30	150						" - Red
7	.05	400		MPH-4-05	TC-15	484-05	DT4S5	Line Filter
8	.02	400		S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
9	.01	400		S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.01	400		S-4-01	TC-11	484-01	DT4S1	" "
11	.05	400		S-4-05	TC-15	484-05	DT4S5	AVC Filter
12	.05	400		S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supply
13	.01	400		S-4-01	TC-11	484-01	DT4S1	Ant. Coupling
14	220	300		MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass - Cer.
15	220	300		MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter - Cer.
16	5000	300		MWS.5-25	MS-25	1464-005	1DR5D5	Fixed Pad. - Cer.
17	1350	300						" " - Cer.
18	47	300		MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap. - Cer.
19	220	300		MO.5-325	1FM-325	1468-00025	5W5T25	Fixed Trimmer - Cer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	CLAROSTAT PART No.	
20A	500KΩ	½	3002	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	A	RS-2	Attach to 20A per instructions
C	Switch		" "	41	SW-A	" " " " "

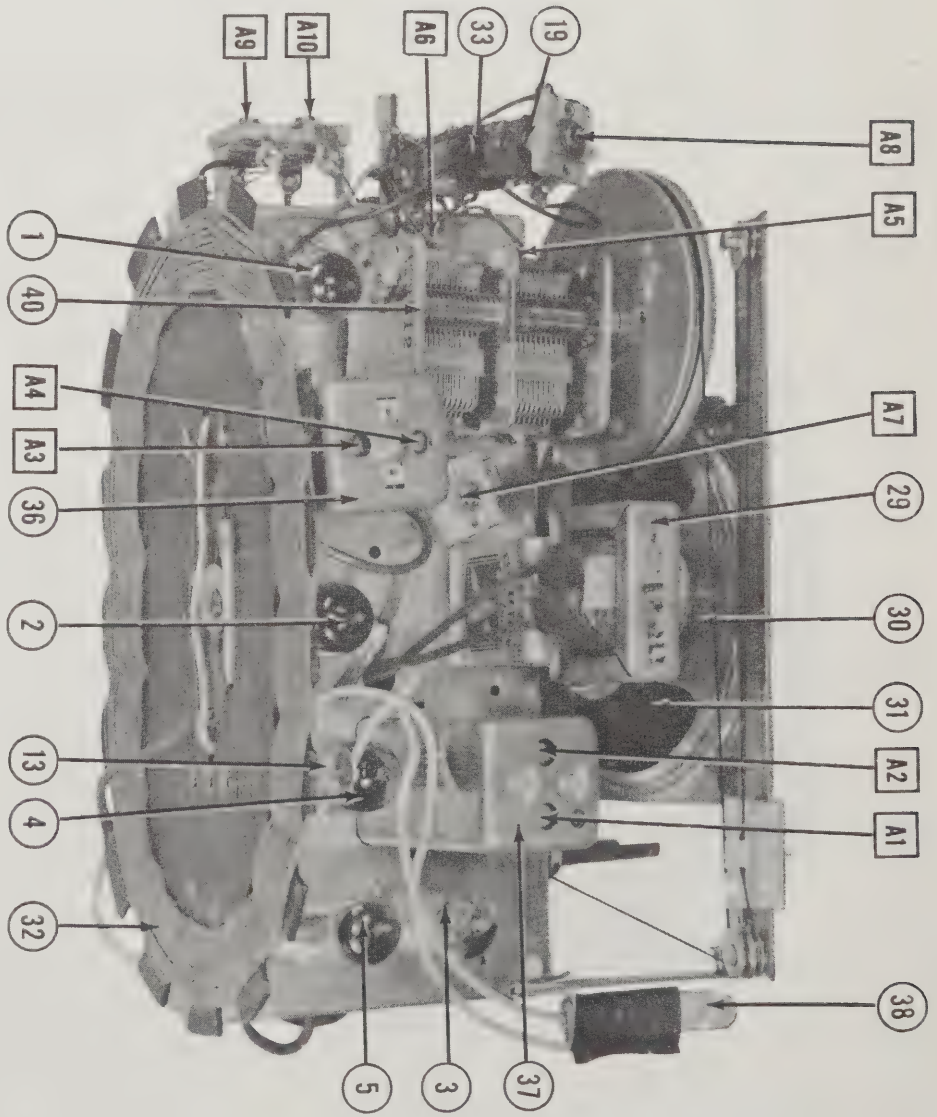
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	
21	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
22	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
23	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
24	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
25	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
26	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
27	2700Ω	2	3004	BT-2-2700	Red-Vi.-Red Filter
28	18Ω	½		BW-½-18	Br.-Gray-Blk. Rectifier Ballast

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DEWALD PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
29	2500Ω	4.0Ω	160Ω	.55Ω		A-3876*	T22S45*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			DEWALD PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
30	PM	4.0Ω	7000		4A07‡	‡Drill new mounting holes.
	CONE DIA.	VC DIA.				
31	3-15/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

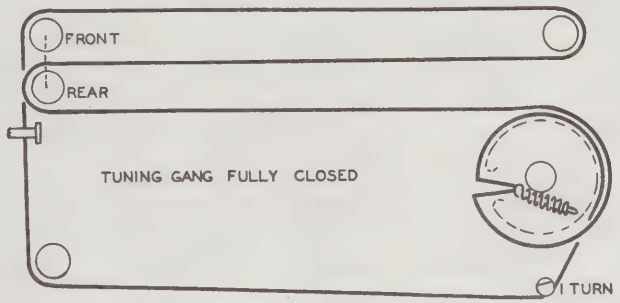
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	DEWALD PART No.	MEISSNER PART No.	
32	Loop Ant.	.1Ω	1.5Ω	1016		
33A	SW Ant.Coil	.1Ω	0Ω	1036		Band 2
B	" " "	.3Ω	.2Ω			Band 1
34	BC Osc.Coil		5.8Ω	1017	14-1040	Tap @ .7Ω
35A	SW " "		.1Ω	1035		Band 2
B	" " "		.2Ω			Band 1
36	Input IF	18.5Ω	18.5Ω	1000	16-6658	
37	Output IF	29Ω	29Ω	1002	16-6660	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					DEWALD PART No.		
38	Bayonet	6-8	0.15A	Brown	#47		Type 47

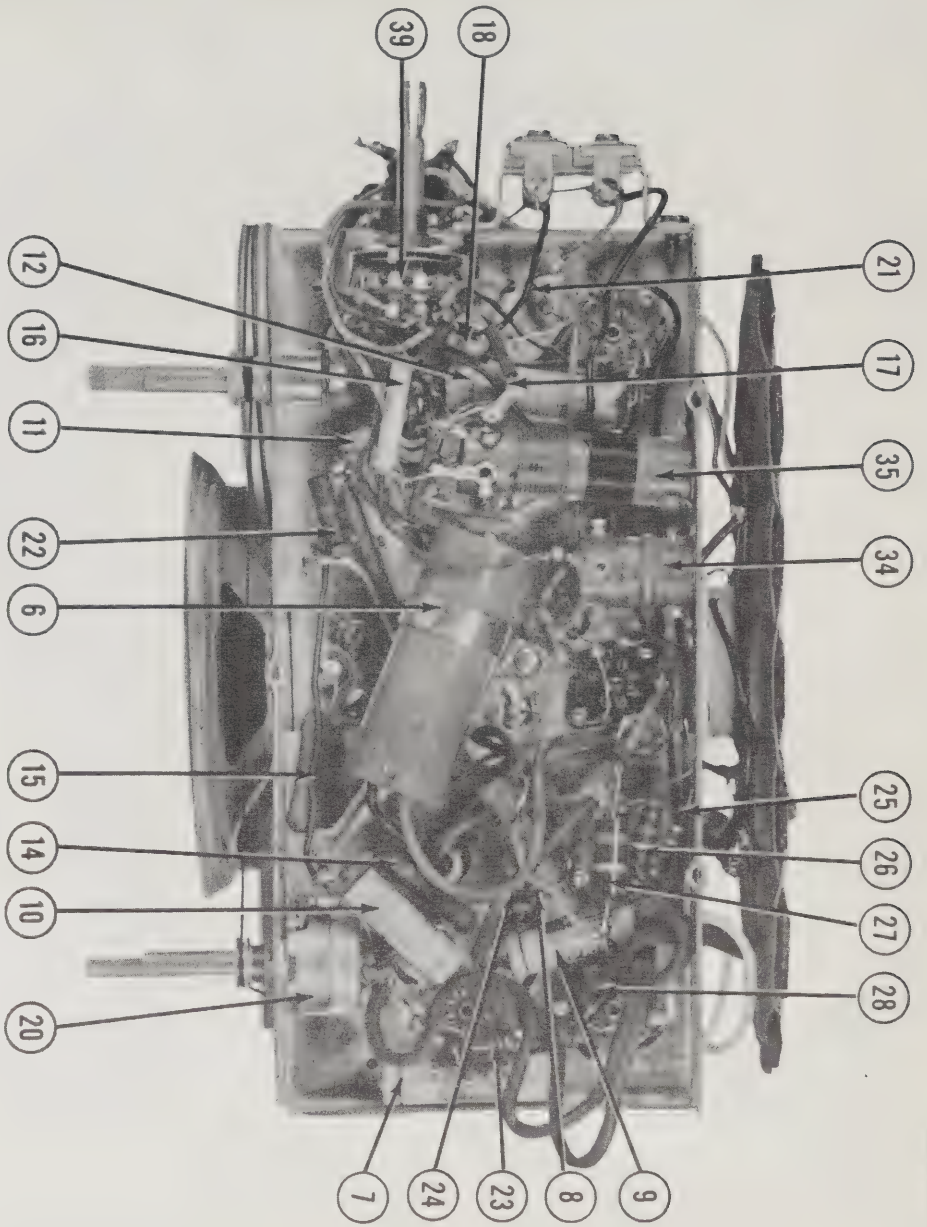
MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
39	Switch	8017	Band
40	2 Gang Var. Cap	2014	(20-455 MMF) each section)
A7	Trimmer	2021-1	SW#2 Osc. Adj.
A8	"	2021-2	SW#2 Ant. Adj.
	Dial Scale	6011	
	Knob	4037	



DIAL CORD DRIVE

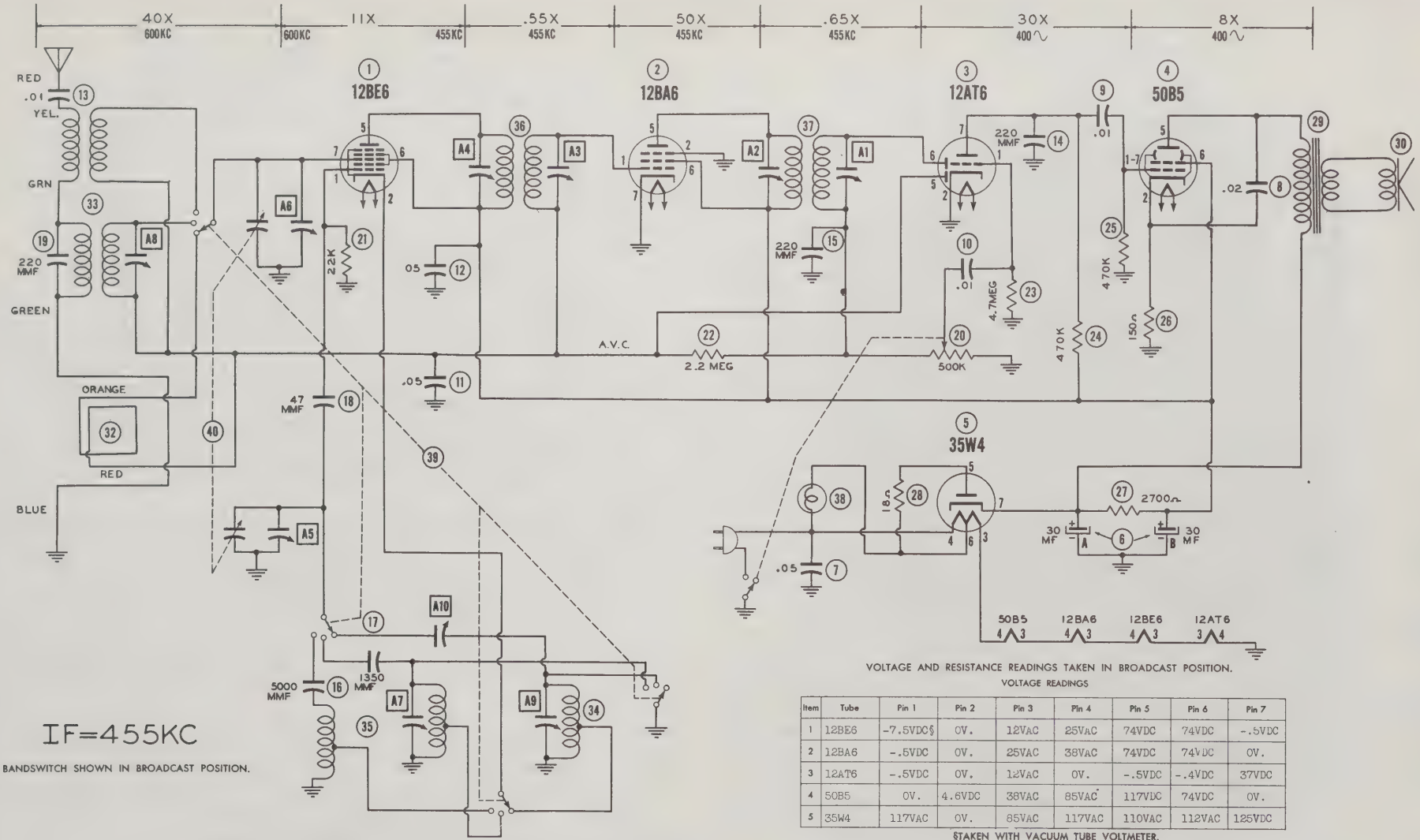
CHASSIS—BOTTOM VIEW



DEWALD MODEL B-510

DATE 2/48 SET #34 FOLDER #484-7

DEWALD MODEL B-510



IF=455KC

BANDSWITCH SHOWN IN BROADCAST POSITION.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-7.5VDC§	0V.	12VAC	25VAC	74VDC	74VDC	-.5VDC
2	12BA6	-.5VDC	0V.	25VAC	38VAC	74VDC	74VDC	0V.
3	12AT6	-.5VDC	0V.	12VAC	0V.	-.5VDC	-.4VDC	37VDC
4	50B5	0V.	4.6VDC	38VAC	85VAC	117VDC	74VDC	0V.
5	35W4	117VAC	0V.	85VAC	117VAC	110VAC	112VAC	125VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	22KΩ	1Ω	13Ω	26Ω	110KΩ	110KΩ	3 Meg.
2	12BA6	3 Meg.	0Ω	26Ω	40Ω	110KΩ	110KΩ	0Ω
3	12AT6	5 Meg.	0Ω	13Ω	0Ω	3 Meg.	500KΩ	580KΩ
4	50B5	480KΩ	150Ω	40Ω	87Ω	110KΩ	110KΩ	480KΩ
5	35W4	125Ω	INF.	87Ω	125Ω	145Ω	120Ω	110KΩ

484-7

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

GRANTLINE MODEL 508-7
BATTERY-LINE OPERATED

GRANTLINE MODEL 508-7
BATTERY-LINE OPERATED

GRANTLINE MODEL 508-7

TRADE NAME	Grantline, Model 508-7
SUPPLIER	W. T. Grant Co., 1441 Broadway, New York, N.Y.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output
POWER SUPPLY RATING	110-120 Volts AC-DC or 7.5 Volts "A" Supply and 67.5 Volts "B" Supply .22 Amp. @ 117 Volts AC or 54MA @ 7.5 Volts DC and 5MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to end limit mark at left edge of dial backplate. There are three marks on bottom edge of dial backplate. Reading from left to right they are end limit, 600KC & 1500KC.

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF to reduce hum modulation.
2		Loop	1500KC	Left edge pointer to 1500KC mark on dial backplate.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 2/48 SET #34 FOLDER #484-8

PARTS LIST AND DESCRIPTIONS

GRANTLINE MODEL 508-7
BATTERY-LINE OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GRANTLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det.-AVC-AF	1S5	1S5	5AU	
4	Power Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: GRANTLINE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
5A	25	150	R-CE2*	DSB-303	TA-330	PRSA302010	EZ3315	Filter - Grn.
B	25	150						" - Red
C	200	10		M-100-12	UHC-112		ERH121	Fil. Bypass - Yl.
6	.05	400	CP503-1	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
7	.005	500	CP502-2	QA1M-6-.006	TC-25	538T-005	DT6D5	Output Plate Bypass
8	.01	150	CP103-2	QA1M-2-.01	TC-11	338T-01	ZYW1S1	Bias Filter
9	.002	120	CP202-1	QA1M-2-.003	TC-22	338T-002	ZZW1D2	Audio Coupling
10	.01	150	CP103-2	QA1M-2-.01	TC-11	338T-01	ZYW1S1	AF Screen Bypass
11	.001	400	CP102-1	QA1M-6-.001	TC-21	338T-001	ZNW6D1	Audio Coupling
12	.01	150	CP103-2	QA1M-2-.01	TC-11	338T-01	ZYW1S1	IF Grid Filter
13	.05	200	CP503-2	S-4-05	TC-15	484-05	DT2S5	Fil. Bypass
14	.01	150	CP103-2	QA1M-2-.01	TC-11	338T-01	ZYW1S1	Conv. Screen Bypass
15	.05	200	CP503-2	S-4-05	TC-15	484-05	DT2S5	AVC Filter
16	.1	200	CP104-2	S-2-.1	TC-1	484-.1	DT2P1	Line Isolation
17	.05	200	CP503-2	S-4-05	TC-15	484-05	DT2S5	Filament Bypass
18	100	300	CM101-1	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
19	100	300	CM101-1	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter

*Some sets may use filter part #CE-12 which has 125 MFD low voltage section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GRANTLINE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20	1 Meg.	½	VC-6			Volume Control & Sw.

RESISTORS

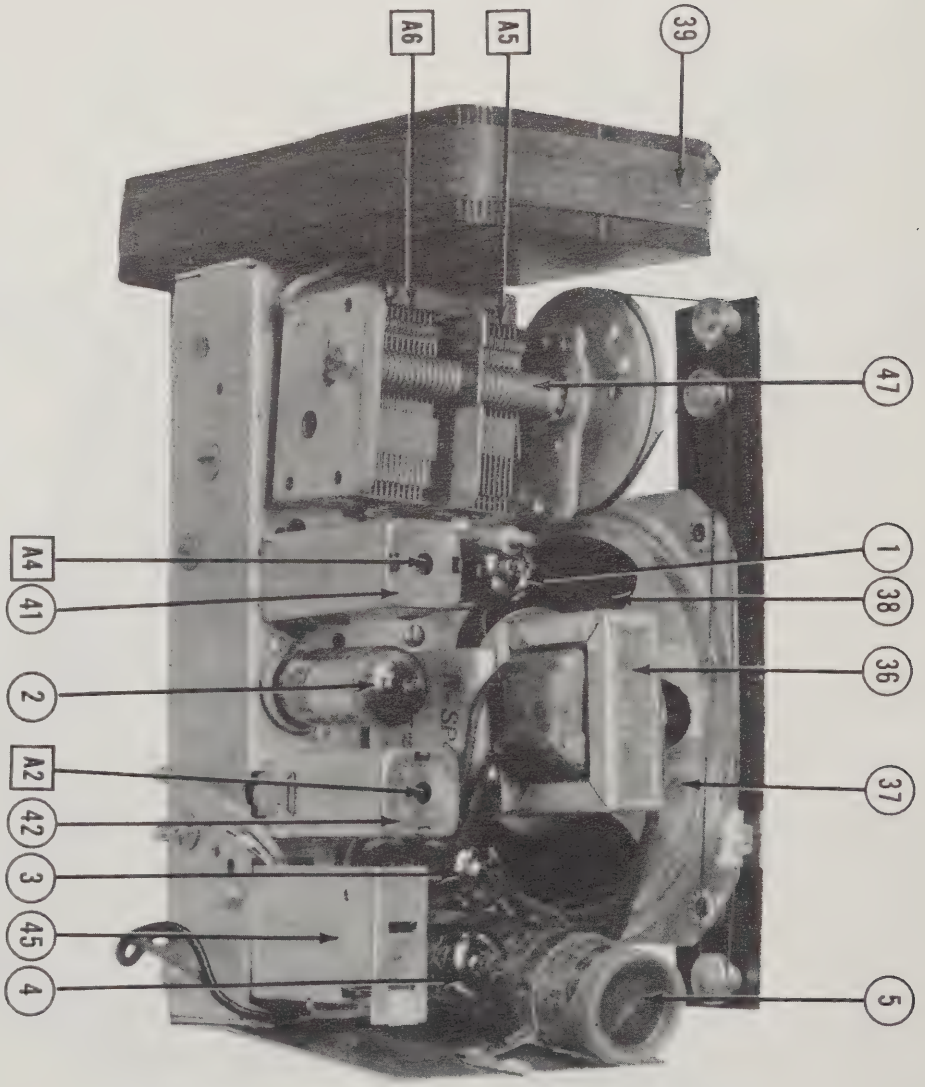
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: GRANTLINE PART No.	IRC PART No.	IDENTIFICATION CODES
21	100KΩ	½	RC104-2	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
22	3.3 Meg.	½	RC335-1	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
23	15KΩ	½	RC153-1	BTS-15K	Br.-Grn.-Or. Converter Screen Decoupling
24	10 Meg.	½	RC106-1	BTS-10 Meg.	Br.-Blk.-Blue IF Grid Filter
25	10 Meg.	½	RC106-1	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	3.3 Meg.	½	RC335-1	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
27	1 Meg.	½	RC105-1	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
28	2.2 Meg.	½	RC225-1	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
29	1 Meg.	½	RC105-1	BTS-1 Meg.	Br.-Blk.-Grn. Bias
30	270KΩ	½	RC274-2	BTS-270K	Red-Vi.-Yl. Bias
31	470Ω	½	RC471-1	BTS-470	Yl.-Vi.-Br. Filament String
32	820Ω	½	RC821-2	BTS-820	Gray-Red-Br. Filament String
33	2720Ω	10	RP-1	ABA-3000	Filament Dropping-See Note
34	7500Ω	1	RC752-5	BTA-6800	Vi.-Grn.-Red Filter
35	56Ω	2	RW560-8	Bk-2-56	Grn.-Blue-Blk. Surge Limiter

Note-On IRC replacement set slider at 2720Ω from one end.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: GRANTLINE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
36	6000Ω	8.5Ω	440Ω	.65Ω	TR-7	A-3878†	T22S46†	A-2900†	†Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA GRANTLINE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
37	FIELD / PM	VC IMP. / 3.3Ω	R-SP4			
38	CONE DIA. / 4"	VC DIA. / 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

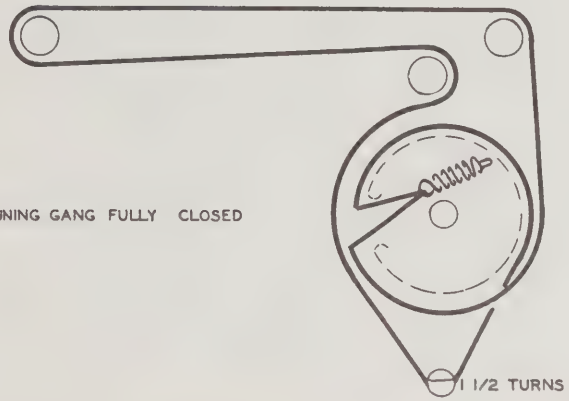
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA GRANTLINE PART No.	REPLACEMENT DATA MEISSNER PART No.	
39	Loop Ant.		.3Ω	LP-6		
40	Osc. Coil	2.5Ω	6.5Ω	LC-4	14-1040‡	‡Add 50 MMFD from grid to high side tuning cap.
41	Input IF	19Ω	19Ω	LF-19	16-6668	
42	Output IF	19Ω	19Ω	LF-19	16-6669	

BATTERIES

ITEM No.	VOLTAGE	GRANTLINE PART No.	EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	INSTALLATION NOTES
43	7.5V "A"		#950			5 Used in series
44	67.5V "B"			#467		

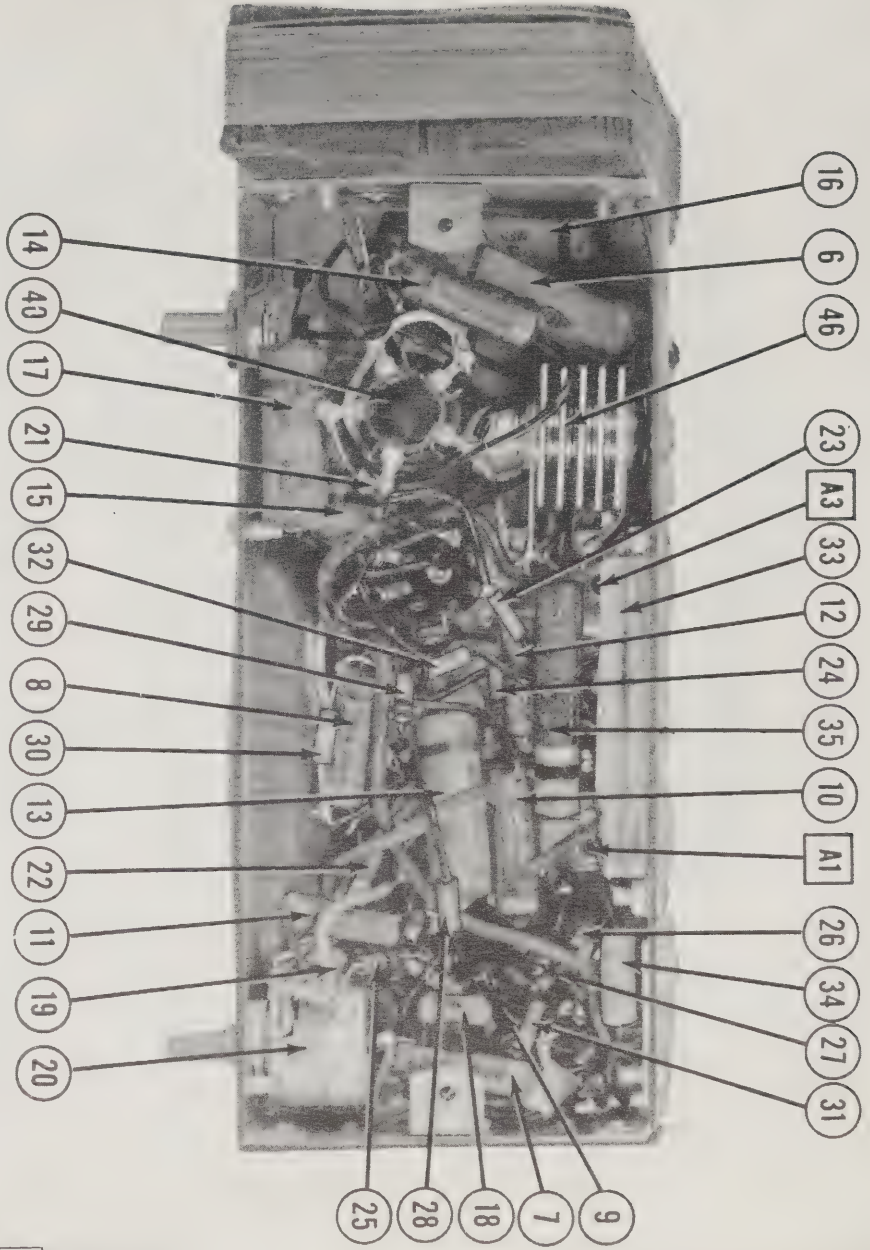
MISCELLANEOUS

ITEM No.	PART NAME	GRANTLINE PART No.	NOTES
45	Switch	SW-3	AC-DC-Batt.
46	Rectifier	SR-1	Selenium
47	2 Gang Var. Cap.	CV-10	(27-475MMF, 18-184 MMF)



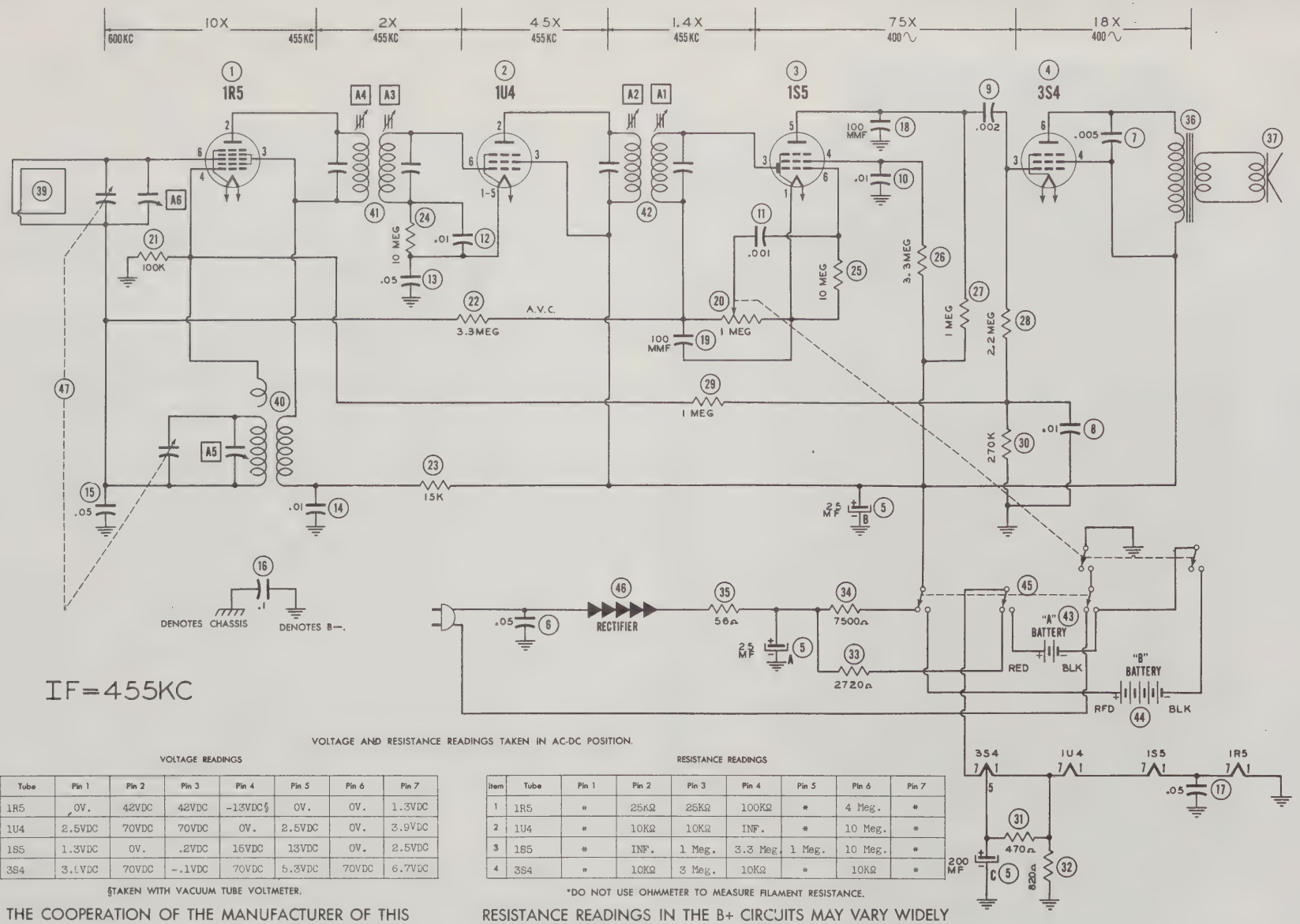
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



GRANTLINE MODEL 508-7
BATTERY-LINE OPERATED

GRANTLINE MODEL 508-7
BATTERY-LINE OPERATED



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	0V.	42VDC	42VDC	-13VDC§	0V.	0V.	1.3VDC
2	1U4	2.5VDC	70VDC	70VDC	0V.	2.5VDC	0V.	3.9VDC
3	1S5	1.3VDC	0V.	.2VDC	15VDC	13VDC	0V.	2.5VDC
4	3S4	3.6VDC	70VDC	-.1VDC	70VDC	5.3VDC	70VDC	6.7VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	25KΩ	25KΩ	100KΩ	*	4 Meg.	*
2	1U4	*	10KΩ	10KΩ	INF.	*	10 Meg.	*
3	1S5	*	INF.	1 Meg.	3.3 Meg.	1 Meg.	10 Meg.	*
4	3S4	*	10KΩ	3 Meg.	10KΩ	*	10KΩ	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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484-8

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such a as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to low side of volume control.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

KNIGHT MODEL 5D-455
BATTERY-LINE OPERATED

KNIGHT MODEL 5D-455
BATTERY-LINE OPERATED

KNIGHT MODEL 5D-455

TRADE NAME	Knight, Model 5D-455
SUPPLIER	Allied Radio Corp., 833 W. Jackson Blvd., Chicago 7, Ill.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output, 117Z3 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC or 7.5 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	.14 Amp. @ 117 Volts AC or 53MA @ 7.5 Volts DC and 8.3MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMFD to reduce hum modulation.
2		Loop	1700KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

KNIGHT MODEL 5D-455
BATTERY-LINE OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	
5	Rectifier	117Z3	117Z3	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: KNIGHT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	25	150	CE-12	DSB-2x30-150	TA-330	PRSA302010-150	EZ3315	Filter - Grn.
B	25	150						" - Red
C	125	10		M-100-12	UHC-112		BRH601	Filament Bypass-Yl.
7	.05	400	CP503-5	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
8	.005	400	CP502-2	S-6-005	TC-25	484-005	DT6D5	Output Plate Bypass
9	.01	150	CP103-2	S-4-01	TC-11	484-01	DT2S1	Bias Filter
10	.002	200	CP202-3	S-6-002	TC-22	484-002	DT6D2	Audio Coupling
11	.01	150	CP103-2	S-4-01	TC-11	484-01	DT2S1	AF Screen Bypass
12	.001	600	CP102-3	S-6-001	TC-21	484-001	DT6D1	Audio Coupling
13	.01	150	CP103-2	S-4-01	TC-11	484-01	DT2S1	IF Grid Filter
14	.05	200	CP503-5	S-4-05	TC-15	484-05	DT2S5	Filament Bypass
15	.01	150	CP103-2	S-4-01	TC-11	484-01	DT2S1	Conv. Decoupling
16	.1	200	CP104-2	S-4-1	TC-1	484-.1	DT2P1	Line Isolation
17	.05	200	CP503-5	S-4-05	TC-15	484-05	DT2S5	AVC Filter
18	.05	200	CP503-5	S-4-05	TC-15	484-05	DT2S5	Filament Bypass
19	100	500	CM101-1	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
47	100	500	CM101-1	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
20	1 Meg.	½	VC-6			Volume Control & Sw.

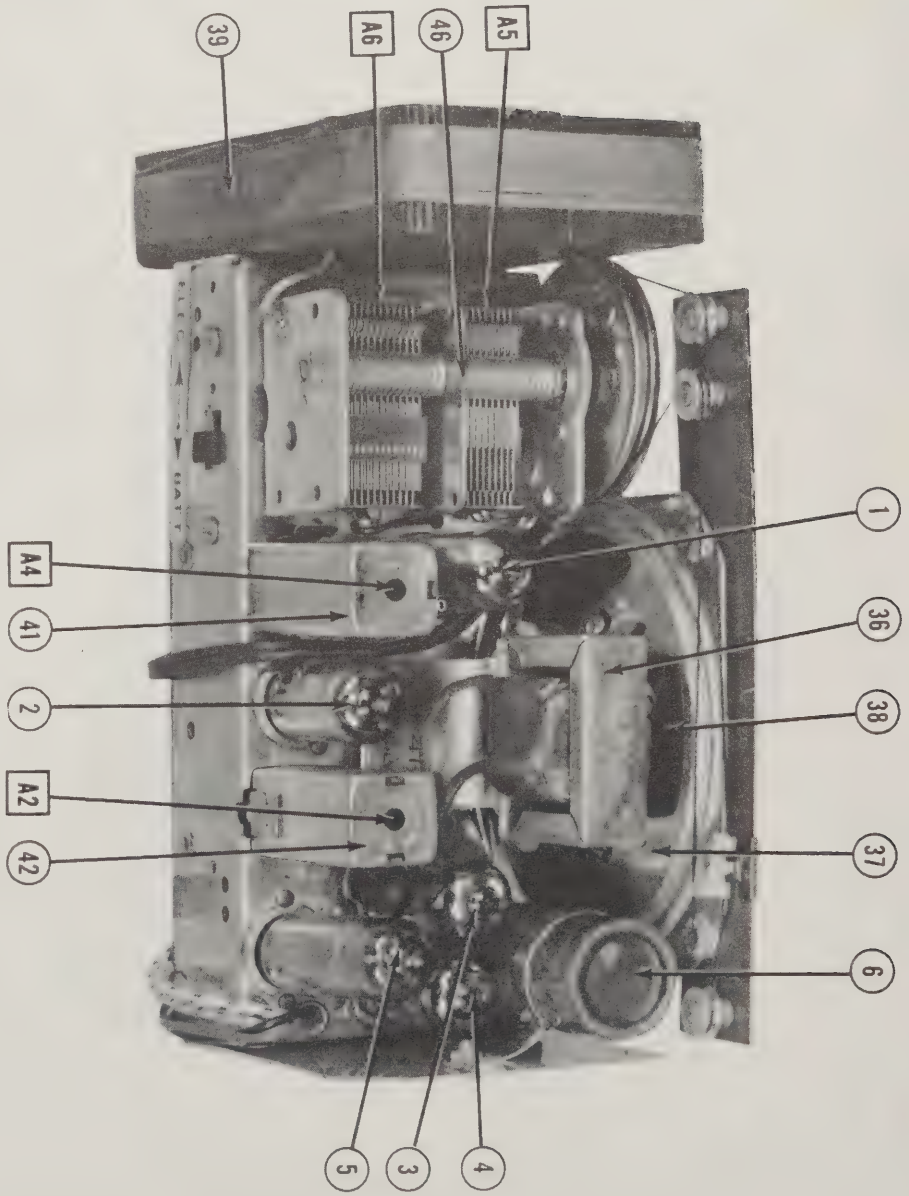
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	IRC PART No.	IDENTIFICATION CODES
21	100KΩ	½	RC104-2	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
22	3.3 Meg.	½	RC335-1	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
23	15KΩ	½	RC153-1	BTS-15K	Br.-Grn.-Or. Converter Decoupling
24	10 Meg.	½	RC106-1	BTS-10 Meg.	Br.-Blk.-Blue IF Grid
25	10 Meg.	½	RC106-1	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
26	3.3 Meg.	½	RC335-1	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
27	1 Meg.	½	RC105-2	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
28	2 Meg.	½	RC205-1	BTS-2.2 Meg.	Red-Blk.-Grn. Output Grid
29	1 Meg.	½	RC105-2	BTS-1 Meg.	Br.-Blk.-Grn. Bias Network
30	270KΩ	½	RC274-2	BTS-270K	Red-Vi.-Yl. Bias Network
31	470Ω	½	RC471-1	BTS-470	Yl.-Vi.-Br. Filament String
32	820Ω	½	RC821-2	BTS-820	Gray-Red-Br. " "
33	2650Ω	10	RP-3		Filament Dropping
34	6800Ω	1	RC682-5	BTA-6800	Blue-Gray-Red Filter
35	18Ω	½	RC180-1	BW-½-18	Br.-Gray-Blk. Surge Limiter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: KNIGHT PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	INSTALLATION NOTES
36	6800Ω	3.0Ω	440Ω	.6Ω	TR-7	A-3877*	T22S45*	A-2900*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: KNIGHT PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.				
37	PM	3.0Ω	SP-41-7			
	CONE DIA.	VC DIA.				
38	4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

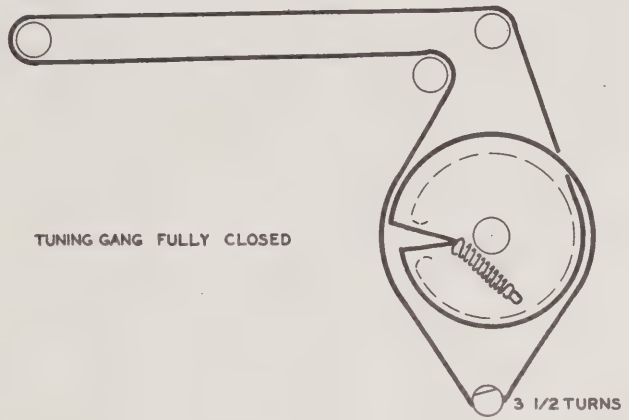
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: KNIGHT PART No.	MEISSNER PART No.	
39	Loop Ant.		2.5Ω	LP6		
40	Osc. Coil	1.5Ω	4.1Ω	LC4	14-1040†	†Add 50MMFD from osc. grid to high side tuning cap.
41	Input IF	14.9Ω	14.9Ω	LF22	16-6668	
42	Output IF	14.9Ω	14.9Ω	LF22	16-6669	

BATTERIES

ITEM No.	VOLTAGE	KNIGHT PART No.	EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	INSTALLATION NOTES
43	7.5V "A"		#950			5 Used in series
44	67.5V "B"			#467		

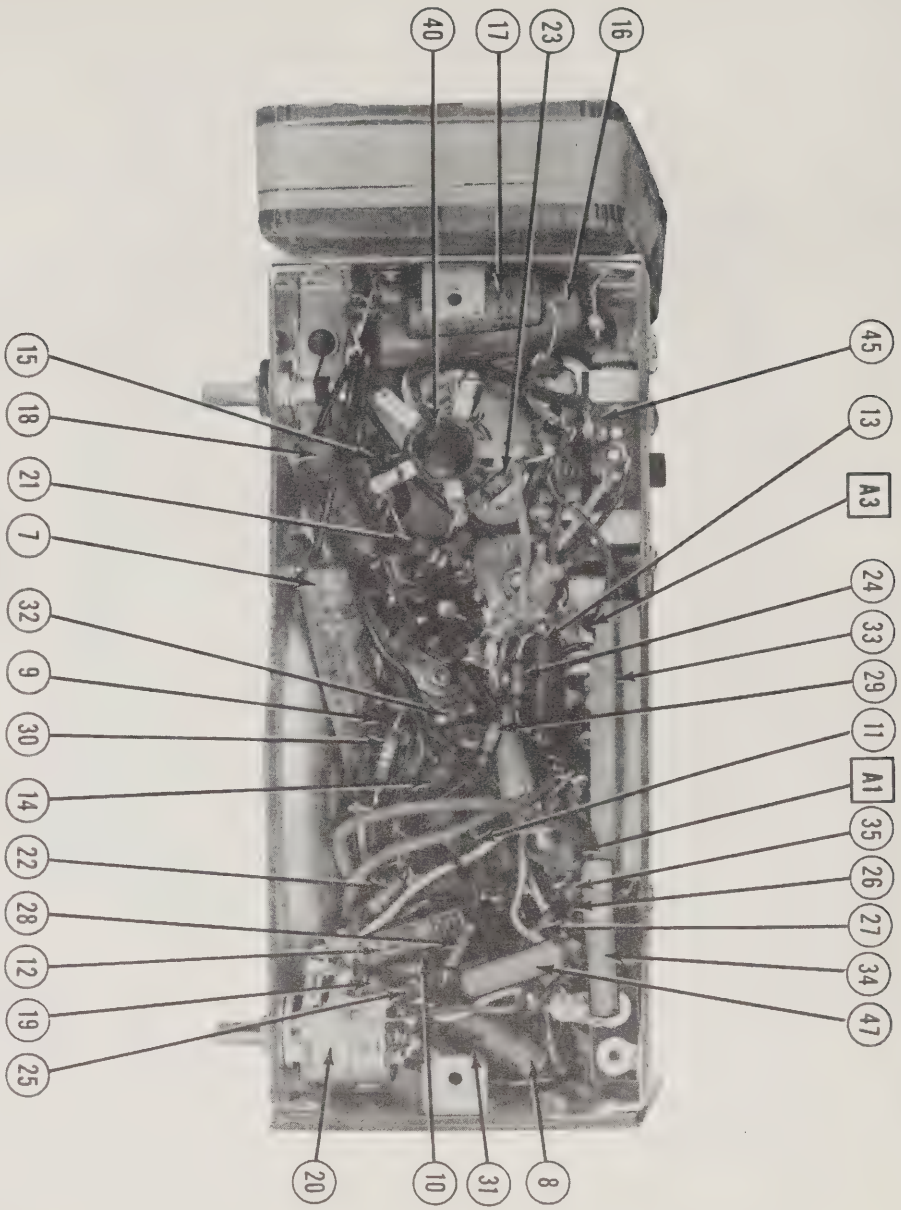
MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
45	Switch	SW-10	AC-DC-Batt.
46	2 Gang Var. Cap.	CV10	(34-470MMF, 21-183MMF)



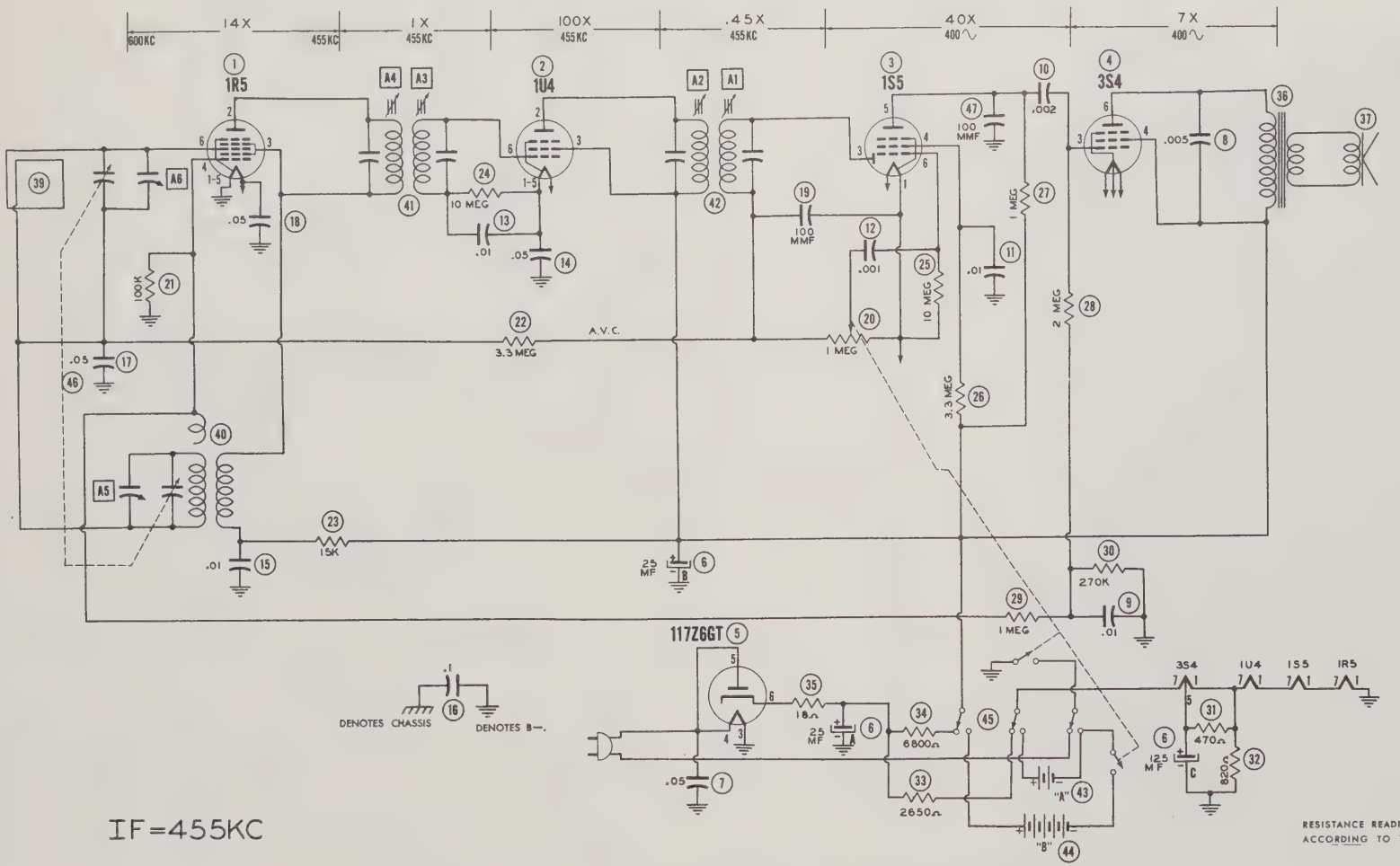
DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



KNIGHT MODEL 5D-455
BATTERY-LINE OPERATED

KNIGHT MODEL 5D-455
BATTERY-LINE OPERATED



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

Pin No.	1R5 Volt.	1R5 Res.	1U4 Volt.	1U4 Res.
1	0V.	*	2.6VDC	*
2	37VDC	24KΩ	65VDC	8.5KΩ
3	37VDC	24KΩ	65VDC	8.5KΩ
4	-12.5VDC§	100KΩ	65VDC	8.5KΩ
5	0V.	*	4VDC	*
6	0V.	4.5 Meg.	0V.	10 Meg.
7	1.3VDC	*	4VDC	*

§TAKEN WITH VACUUM TUBE VOLTMETER.

Pin No.	1S5 Volt.	1S5 Res.	3S4 Volt.	3S4 Res.
1	1.3VDC	*	4VDC	*
2	0V.	INF.	62VDC	8.5KΩ
3	-.2VDC	1 Meg.	-.15VDC	2 Meg.
4	4.3VDC	3.3 Meg.	65VDC	8.5KΩ
5	8VDC	1 Meg.	5.2VDC	*
6	0V.	10 Meg.	62VDC	8.5KΩ
7	2.6VDC	*	6.5VDC	*

Pin No.	117Z3 Volt.	117Z3 Res.
1	117VAC	44Ω
2	0V.	INF.
3	0V.	0Ω
4	117VAC	44Ω
5	117VAC	44Ω
6	124VDC	2.5KΩ
7	0V.	INF.

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to low side of volume control.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured a t 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

MECK MODEL CE-500
(5C5-P12)

MECK MODEL CE-500
(5C5-P12)

MECK MODEL CE-500 (5C5-P-12)

TRADE NAME	Meck, Model CE-500 (5C5-P-12)
MANUFACTURER	John Meck Industries, Plymouth, Indiana
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12BE6 Converter, 12BA6 IF Amp., 12AT6 Det.-AVC-AF, 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1730KC RATING .27 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

MECK 1[illegible]5L
C5-[illegible] (...F-1.)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12BE6	12BE6	7CH	
2	IF Amp.	12BA6	12BA6	7BK	
3	Det.-AVC-AF	12AT6	12AT6	7BT	
4	Power Output	50B5	50B5	7BZ	
5	Rectifier	35W4	35W4	5BC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	50	150		DSB-5030-150	TA-530	PRSA150-30-50	EDL5315	Filter-Grn.
B	30	150						" -Red
7	.05	400		MPH-4-05	TC-15	484-05	DT4S5	Line Filter
8	.05	400		S-4-05	TC-15	484-05	DT4S5	Output Plate Bypass
9	.01	400		S-4-01	TC-11	484-01	DT4S1	Audio Coupling
10	.01	400		S-4-01	TC-11	484-01	DT4S1	" "
11	.05	200		S-4-05	TC-15	484-05	DT2S5	AVC Filter
12	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
13	250	500		MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
14	50	500		MO.5-45	1FM-45	1468-00005	5W5S5	Osc. Grid Cap.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
15A	1 Meg.	½	VC10105	D13-137	AM-63-Z	Volume Control
B	Shaft		Not Req.	E	KS6-3	Attach to 15A per instructions
C	Switch		" "	41	SW-A	" " " " "

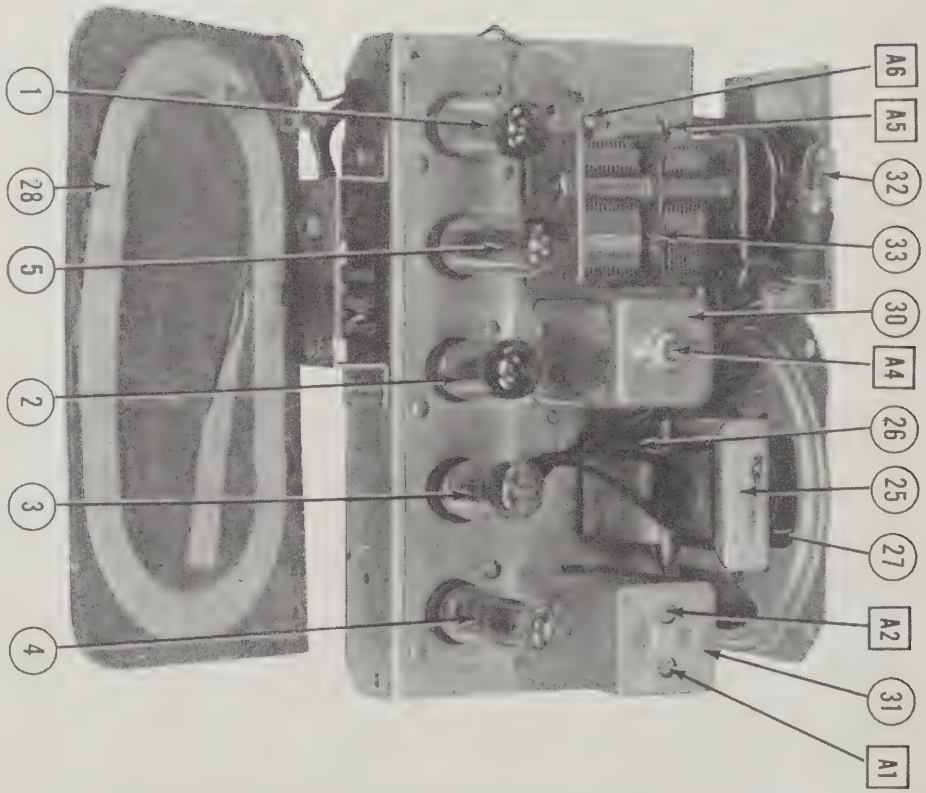
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
16	20KΩ	½		BTS-22K	Red-Blk.-Or. Oscillator Grid
17	1000Ω	½		BTS-1000	Br.-Blk.-Red Parasitic Suppressor
18	150Ω	½		BW-½-150	Br.-Grn.-Br. IF Cathode
19	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
20	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
21	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
22	500KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
24	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MECK PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No	INSTALLATION NOTES
25	1990Ω	3.3Ω	188Ω	.9Ω	TO-10000	A-3876*	T22845*	A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MECK PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-113		
26	PM	3.3Ω	SR-10000	Mod. P4-X	4A07	
	CONE DIA.	VC DIA.				
27	3-15/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

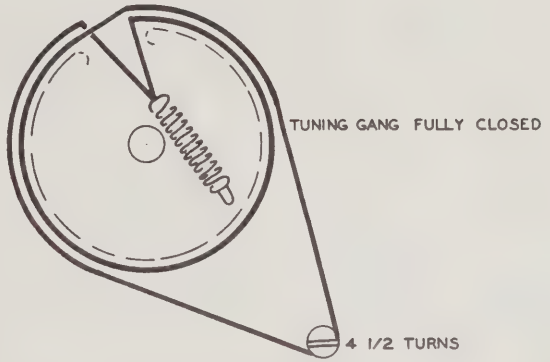
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MECK PART No.	MEISSNER PART No.
28	Loop Ant.		1.8Ω		
29	Osc. Coil		5Ω		14-1040
30	Input IF	25Ω	25.5Ω	TSP10000	16-6658
31	Output IF	20.2Ω	20.2Ω		16-6660

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					MECK PART No.		
32	Bayonet	6-8	0.15	Brown			Type 47

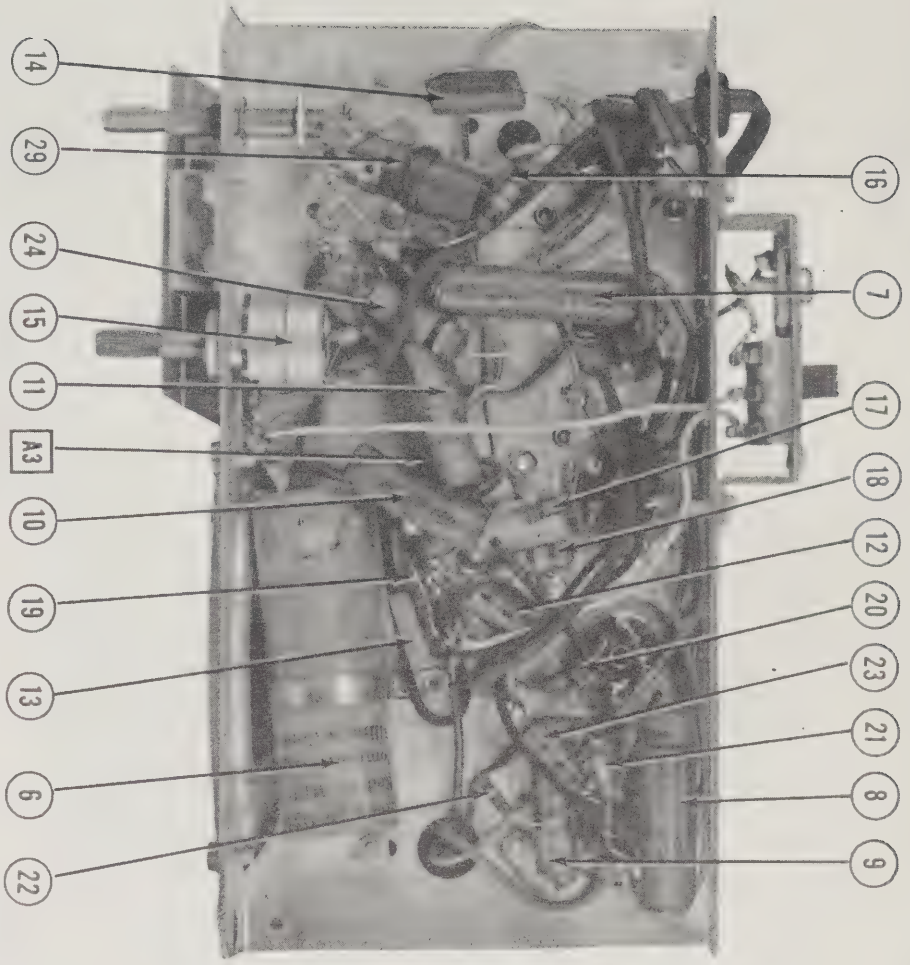
MISCELLANEOUS

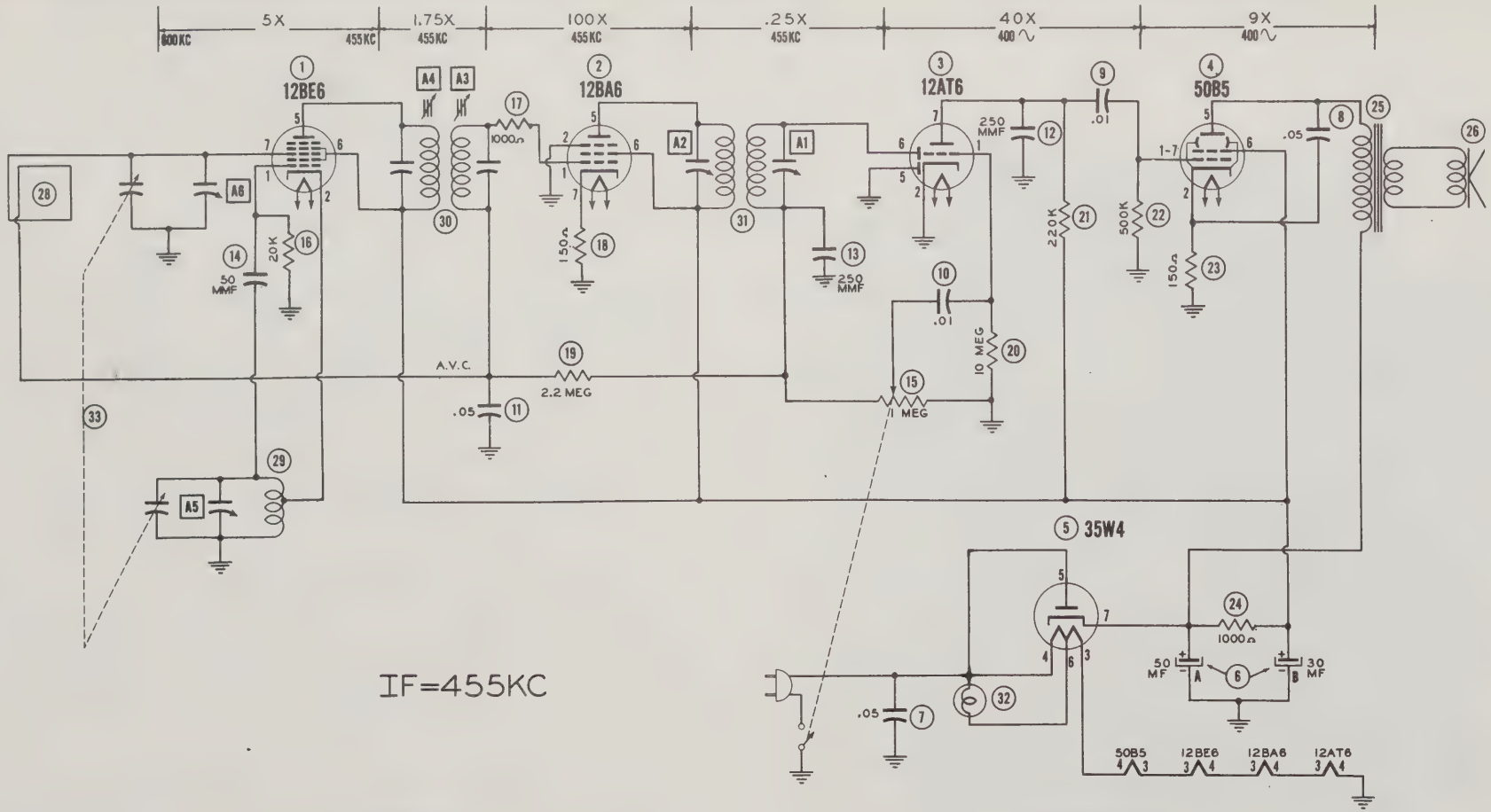
ITEM No.	PART NAME	MECK PART No.	NOTES
33	2 Gang Var. Cap		(15-445MMF, 24-187MMF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	-17VDC§	0V.	40VAC	27VAC	102VDC	102VDC	-.05VDC
2	12BA6	-.05VDC	0V.	27VAC	13VAC	102VDC	102VDC	1.7VDC
3	12AT6	-.5VDC	0V.	13VAC	0V.	0V.	-.4VDC	49VDC
4	50B5	0V.	6.7VDC	40VAC	87VAC	122VDC	102VDC	0V.
5	35W4	0V.	0V.	87VAC	117VAC	117VAC	113VAC	130VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BE6	20KΩ	.6Ω	36Ω	24Ω	250KΩ	250KΩ	3 Meg.
2	12BA6	3 Meg.	0Ω	24Ω	12Ω	250KΩ	250KΩ	140Ω
3	12AT6	10 Meg.	0Ω	12Ω	0Ω	0Ω	1 Meg.	470KΩ
4	50B5	500KΩ	130Ω	36Ω	85Ω	250KΩ	250KΩ	500KΩ
5	35W4	INF.	INF.	85Ω	115Ω	115Ω	110Ω	250KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

484-10

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MECK MODEL CM-500 (5D7-W18)
BATTERY-LINE OPERATED

MECK MODEL CM-500 (5D7-W18)
BATTERY-LINE OPERATED

MECK MODEL CM-500 (Ch. 5D7-W18)

TRADE NAME	Meck, Model CM-500 (Ch. 5D7-W18)
MANUFACTURER	John Meck Industries, Plymouth, Indiana
TYPE SET	Three Power Operated Portable Superheterodyne with Loop Antenna
TUBES (FOUR)	Types, 1R5 Converter, 1L4 IF Amp., 1U5 Det.-AVC-AF, 3Q4 Power Output.
POWER SUPPLY	110-120 Volts AC-DC or 7.5 volts "A" Supply and 90 Volts "B" Supply
RATING	.10 Amp. @ 117 Volts AC or 52MA @ 7.5 Volts DC and 13MA @ 7.5 Volts DC
TUNING RANGE—BROADCAST	540-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer reduce dummy ant. to 200 MMF. to reduce hum modulation.
2		Loop	1630KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 2/48 SET #34 FOLDER #484-11

PARTS LIST AND DESCRIPTIONS

MECK MODEL CM-500 (Ch. 5D7-W18)
BATTERY-LINE OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MECK PART No.	STANDARD REPLACEMENT		
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1L4	1L4	6AR	
3	Det.-AVC-AF	1U5	1U5	6BW	
4	Power Output	3Q4	3Q4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MECK PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	
5A	50	150		DSB-2x50-150	TA-530	PRSA150-50-50	EZ5515		Filter - Grn.
B	50	150							" - Red
5A	50	150	CL-10007	DSB-5030-150	TA-530	PRSA150-50-30	EDL5315		" - Alternate
B	30	150							" - "
6	100	25	CL-10009	M-100-25	UHC-102	PRS25-100	BRD3515†		Filament Bypass
7	.05	400	CP-14503	MPH-4-05	TC-15	484-05	DT4S5		Line Filter
8	.005	200	CP-12503	S-6-005	TC-25	484-005	DT6D5		Output Plate Bypass
9	.005	600	CP-14502	S-6-005	TC-25	684-005	DT6D5		Audio Coupling
10	.005	600	CP-14502	S-6-005	TC-25	684-005	DT6D5		" "
11	.01	120	CP-12103	S-4-01	TC-11	484-01	DT2S1		AF Screen Bypass
12	.02	200	CP-12203	S-4-02	TC-12	484-02	DT2S2		AVC Filter
13	.01	120	CP-12103	S-4-01	TC-11	484-01	DT2S1		Conv. Screen Bypass
14	200			MO.5-32	1FM-32	1468-0002	5W5T2		Diode RF Filter-Cer.
15	47		CM-15500	MO.5-45	1FM-45	1468-00005	5W5Q5		Osc. Grid Cap.

†50x30-150 filter used in some sets.

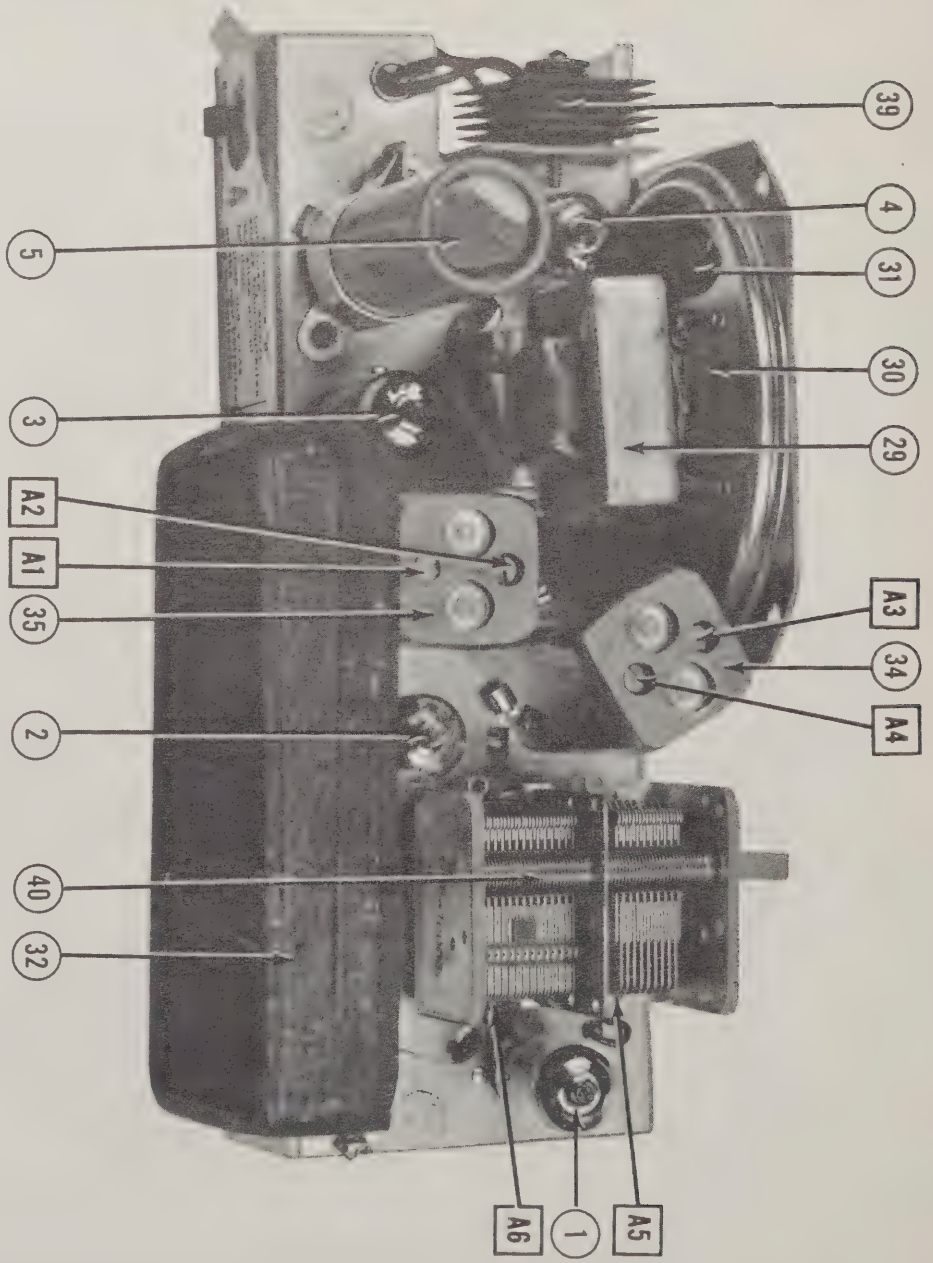
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	MECK PART No.	IRC PART No.	CLAROSTAT PART No.	
16A	1 Meg.	½	VC-21105	D13-137	M-63-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 16A per instructions
C	Switch		" "	42	SW-A2	" " " " "

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MECK PART No.	IRC PART No.	
17	100KΩ	½	RC-31003	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
18	22KΩ	½	RC-32202	BTS-22K	Red-Red-Or. Converter Screen Dropping
19	2 Meg.	½	RC-32204	BTS-2.2 Meg.	Red-Red-Grn. IF Grid
20	2 Meg.	½	RC-32204	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
21	10 Meg.	½	RC-31005	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
22	3.3 Meg.	½	RC-33304	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
23	1 Meg.	½	RC-31004	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
24	2 Meg.	½	RC-32204	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
25	22Ω	½	RC-30220	BW-½-22	Red-Red-Blk. Surge Limiter
26A	800Ω	10	RX-10004	AB-800	Filament Dropping
B	1950Ω			AB-2000	" "
27	470Ω	½	RC-34700	BTS-470	Yl.-Vl.-Br. Filament String
28	22KΩ	½	RC-32202	BTS-22K	Red-Red-Or. Series Battery Charging

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MECK PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
29	7400Ω	3.2Ω	620Ω	.5Ω	TO-10007	A-3878*	T22S47*	A-2931*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MECK PART No.	JENSEN PART No.	QUAM PART No.	
30	FIELD PM	VC IMP. 3.2Ω	SR-10000	ST-113 Mod. P4-X	4A07	
31	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MECK PART No.	MEISSNER PART No.	
32	Loop Ant.		2.2Ω	ALP10016		
33	Osc. Coil	1.2Ω	6Ω	TRC10001	14-1040	
34	Input IF	19Ω	19Ω	TS10001	16-6658	
35	Output IF	19Ω	19Ω	TS10001	16-6660	

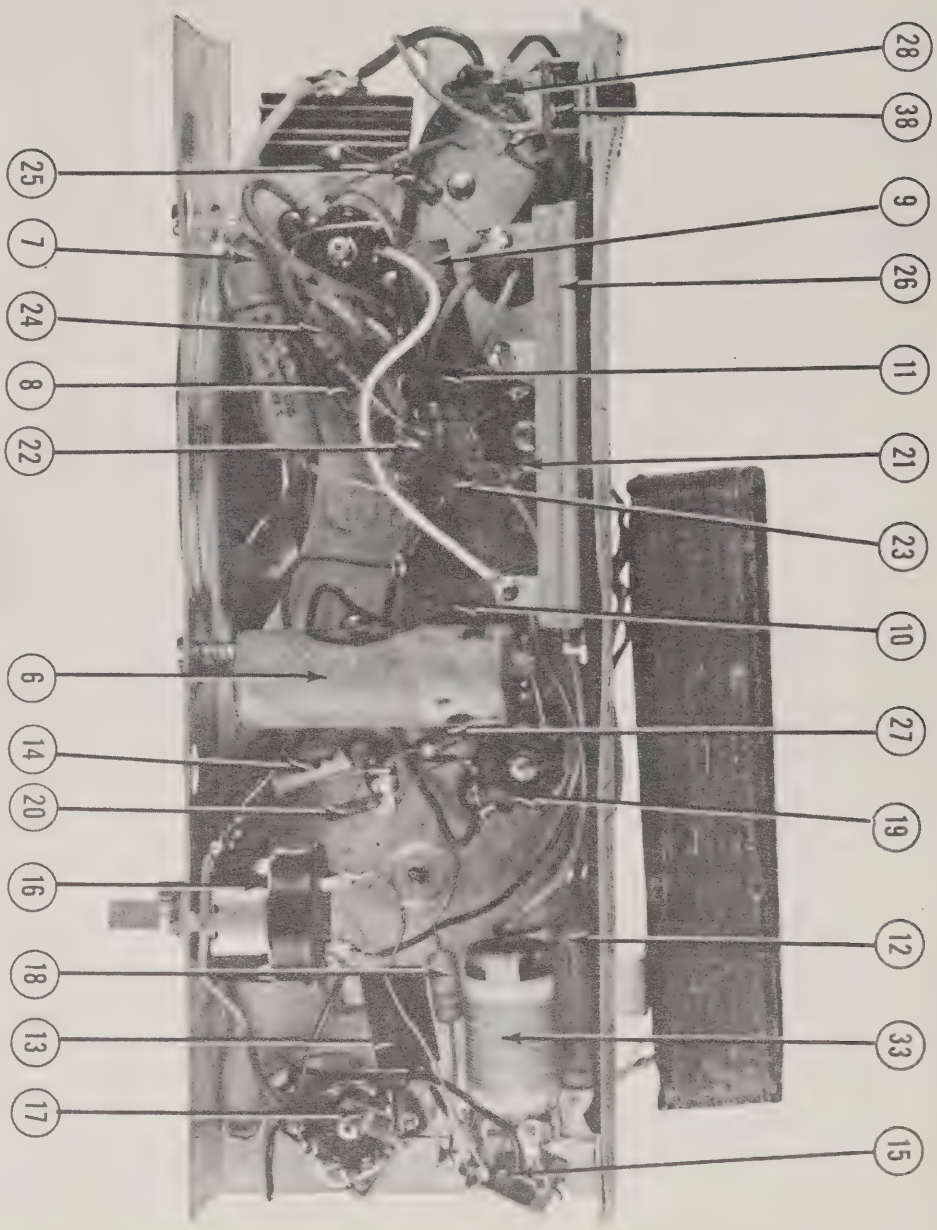
BATTERIES

ITEM No.	VOLTAGE	MECK PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
36	7.5V "A"		#950			5 Used in series
37	90V "B"			#455		2 Used in series

MISCELLANEOUS

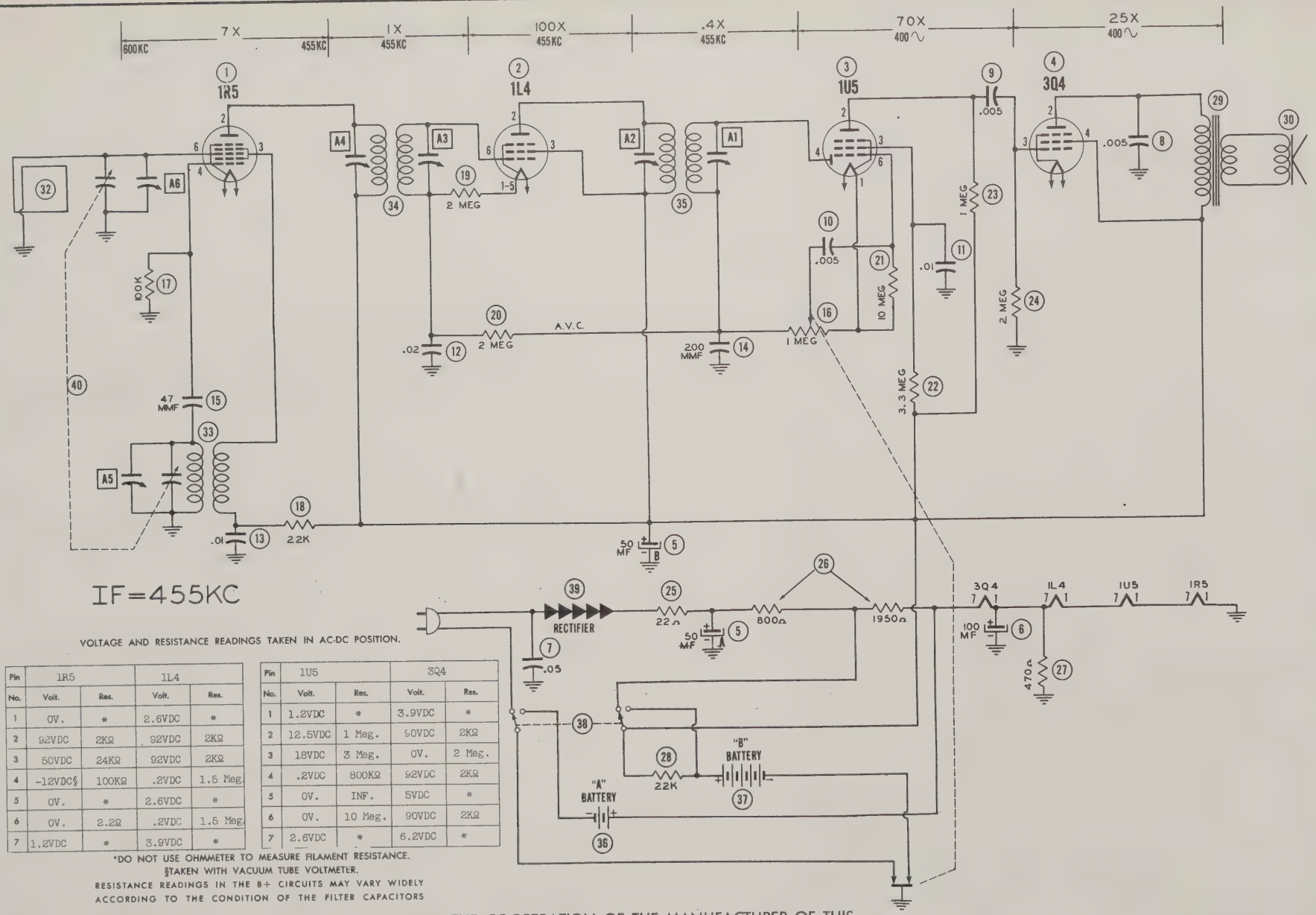
ITEM No.	PART NAME	MECK PART No.	NOTES
38	Switch		AC-DC-Batt
39	Rectifier		Selenium
40	2 Gang Var. Cap.	CV-10008	(33-451MMF, 26-191MMF)

CHASSIS—BOTTOM VIEW



MECK MODEL CM-500 (Ch. SD7-W18) BATTERY-LINE OPERATED

MECK MODEL CM-500 (Ch. SD7-W18) BATTERY-LINE OPERATED



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

Pin No.	1R5 Volt.	1R5 Res.	1L4 Volt.	1L4 Res.
1	0V.	*	2.6VDC	*
2	92VDC	2KΩ	92VDC	2KΩ
3	50VDC	24KΩ	92VDC	2KΩ
4	-12VDC§	100KΩ	.2VDC	1.5 Meg.
5	0V.	*	2.6VDC	*
6	0V.	2.2Ω	.2VDC	1.5 Meg.
7	1.2VDC	*	3.9VDC	*

Pin No.	1U5 Volt.	1U5 Res.	3Q4 Volt.	3Q4 Res.
1	1.2VDC	*	3.9VDC	*
2	12.5VDC	1 Meg.	90VDC	2KΩ
3	18VDC	3 Meg.	0V.	2 Meg.
4	.2VDC	800KΩ	92VDC	2KΩ
5	0V.	INF.	5VDC	*
6	0V.	10 Meg.	90VDC	2KΩ
7	2.6VDC	*	6.2VDC	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
§TAKEN WITH VACUUM TUBE VOLTMETER.
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

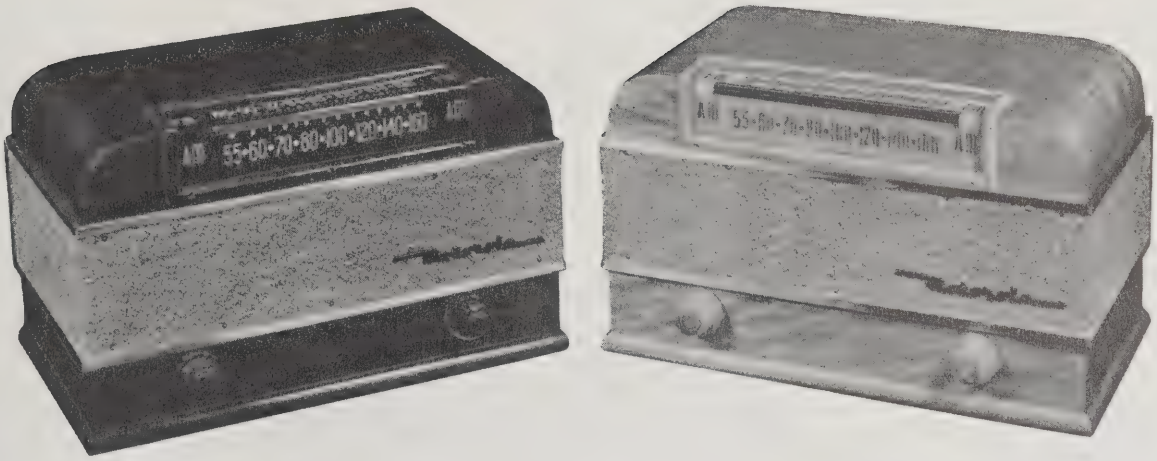
484-11

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting across volume control.

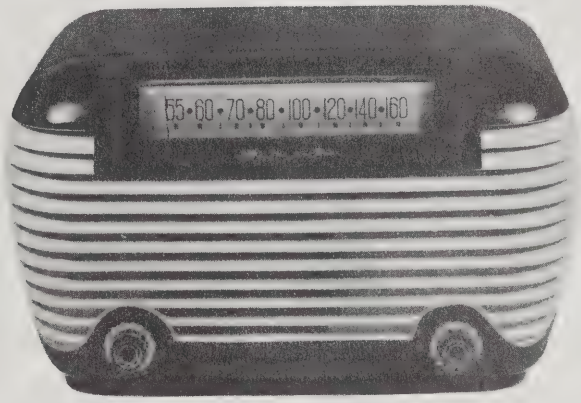
1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA MODELS 77XM21, 77XM22, 77XM22B (Ch. HS-102)

MOTOROLA MODELS 77XM21, 77XM22, 77XM22B (Ch. HS-102)



MODEL 77XM22 MODEL 77XM22B



MODEL 77XM21

MOTOROLA MODELS 77XM21, 77XM22, 77XM22B (Ch. HS-102)

TRADE NAME	Motorola, Models 77XM21, 77XM22, 77XM22B (Ch. HS-102)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago, Ill.
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12AT7, 1st & 2nd FM Conv., 12BE6 1st FM IF-BC Conv., 12BA6 2nd FM IF-BC IF, 12BA6 3rd FM IF, 19T8 FM Disc.-AM Det.-AVC-AF, 50B5 Power Output.
POWER SUPPLY	105-125 Volts AC-DC
RATING	.33 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	535-1620KC FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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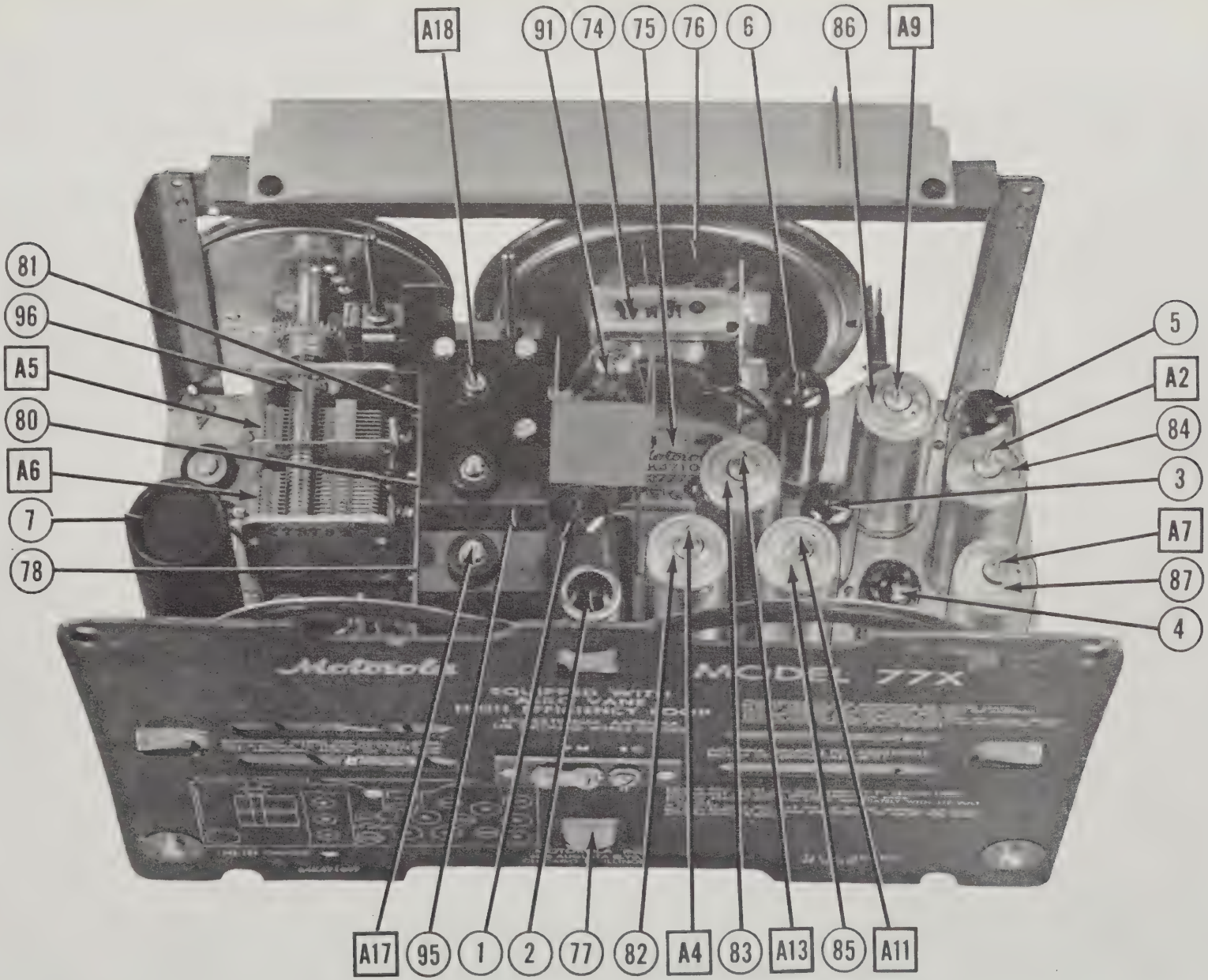
DATE 2/48 SET #34 FOLDER #484-12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Motorola
MODEL 77X

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	1st-2nd FM Conv.	12AT7	12AT7		
2	1st FM IF-BC Conv.	12BE6	12BE6	7CH	
3	2nd FM IF-BC IF	12BA6	12BA6	7BK	
4	3rd FM IF	12BA6	12BA6	7BK	
5	FM Disc.-Det.-AVC-AF	19T8	19T8		
6	Power Output	50B5	50B5	7BZ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	200	23B47029	DY-403020-150	EL-354	AF844D	UP42215	■ Filter
B	20	150						▲ "
C	20	150						"
8	.05	400	8K471635	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.05	200	8A471019	S-4-05	TC-15	484-05	DT2S5	Line Isolation
10	.02	400	8S9802	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
11	.05	400	8K41635	S-4-05	TC-15	484-05	DT4S5	Tone Comp.
12	.01	400	8S9809	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
13	.25	50	8A471019	S-2-25	TC-2	484-.25	DT2P25	Bias Filter
14	.005	100	8A24966	S-6-005	TC-25	484-005	DT6D5	Audio Coupling
15	.01	100	8S9801	S-4-01	TC-11	484-01	DT2S1	3rd IF Cathode Bypass
16	.01	200	8S9825	S-4-01	TC-11	484-01	DT2S1	3rd IF Decoupling
17	.01	200	8S9825	S-4-01	TC-11	484-01	DT2S1	RF Bypass Pwr. Supply
18	.01	200	8S9825	S-4-01	TC-11	484-01	DT2S1	2nd IF Plate Decoupling
19	.01	100	8S9801	S-4-01	TC-11	484-01	DT2S1	AVC Filter
20	.01	100	8S9801	S-4-01	TC-11	484-01	DT2S1	FM 1st IF Cathode Bypass
21	.1	200	8K471636	S-2-1	TC-1	484-.1	DT2P1	RF Bypass Pwr. Supply
22	.02	400	8S9802	S-4-02	TC-12	484-02	DT4S2	Fh Conv. Cath. Bypass
23	.01	200	8S9825	S-4-01	TC-11	484-01	DT4S1	FM Conv. Plate Decoup.
24	.02	400	8S9802	S-4-02	TC-12	484-02	DT4S2	AVC Filter
25	250	500	21K77375	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
26	4700	500	21B470567	MW.5-25	1FM-25	1467-005	1D5D5	AF Cathode Bypass
27	500	500	21R6639	MO.5-35	1FM-35	1468-0005	5W5T5	De-emphasis
28	50	500	21K77373	MO.5-45	1FM-45	1468-00005	5W5Q5	Disc. Diode Filter
29	100	500	21B77286	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
30	100	500	21B77286	MO.5-31	1FM-31	1468-0001	5W5T1	" " "
31	25	500	21K28816	MO.5-425	MS-425	1468-000025	5W5Q25	IF Coupling
32	50	500	21K77373	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap.
33	250	500	21R2729	MOS.5-325	MS-325	1469-00025	5R5T25	RF Coupling
34	250	500	21R2729	MOS.5-325	MS-325	1469-00025	5R5T25	Osc. Coupling
35	500	500	21R2730	MOS.5-35	MS-35	1469-0005	5R5T5	FM Conv. Cath. Bypass
36	50	500	21R6642	MO.5-45	1FM-45	1468-00005	5W5Q5	Ant. Coupling
37	1000	500	21R6638	MO.3-21	1FM-21	1468-001	1W5D1	Filament Bypass
38	1000	500	21R6638	MO.3-21	1FM-21	1468-001	1W5D1	" "
39	1000	500	21R6638	MO.3-21	1FM-21	1468-001	1W5D1	" "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
40A	500KΩ	½	18A470427	D18-133X*	A7-81*	Volume Control tapped @ 25KΩ
B	Shaft		Not Req.	E	KSS-3	Attach to 40A per instructions
C	Switch		" "	41	SW-A	" " " "

*Use original sleeve on volume control shaft to actuate tone switch.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
41	1 Meg.	½	6R6004	BTS-1 Meg.	Br.-Blk.-Grn. 1st FM Converter Grid
42	15KΩ	½	6R3996	BTS-15K	Br.-Grn.-Or. 1st FM Converter Plate Load
43	1 Meg.	½	6R6046	BTS-1 Meg.	Br.-Blk.-Grn. 2nd FM Converter Grid
44	22KΩ	½	6R6028	BTS-22K	Red-Red-Or. 2nd FM Converter Plate Decoupling
45	220KΩ	½	6R6015	BTS-220K	Red-Red-Yl. AVC Network
46	220KΩ	½	6R6015	BTS-220K	Red-Red-Yl. Line Isolation
47	22KΩ	½	6R6028	BTS-22K	Red-Red-Or. BC Osc. Grid
48	27KΩ	½	6R6434	BTS-27K	Red-Vi.-Or. 1st IF Transformer Shunt
49	22KΩ	½	6R6028	BTS-22K	Red-Red-Or. 2nd IF Transformer Shunt
50	68Ω	½	6R2039	BW-½-68	Blue-Gray-Blk. 2nd IF Cathode
51	220Ω	2	6R3933	BW-2-220	Red-Red-Br. 1st IF Cathode
52	1000Ω	½	6R6301	BTS-1000	Br.-Blk.-Red Decoupling
53	1000Ω	½	6R6301	BTS-1000	Br.-Blk.-Red 2nd IF Plate Decoupling
54	68Ω	½	6R2039	BW-½-68	Blue-Gray-Blk. 3rd IF Cathode
55	2.2 Meg.	½	6R3927	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
56	47KΩ	½	6R6056	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
57	33KΩ	½	6R6410	BTS-33K	Or.-Or.-Or. Discriminator Transformer Shunt
58	220KΩ	½	6R6015	BTS-220K	Red-Red-Yl. Disc. Diode Load
59	100KΩ	½	6R6075	BTS-100K	Br.-Blk.-Yl. AVC Network
60	68KΩ	½	6R6001	BTS-68K	Blue-Gray-Or. Disc. Diode Load
61	150KΩ	½	6R6182	BTS-150K	Br.-Grn.-Yl. Disc. Diode Load
62	220KΩ	½	6R6015	BTS-220K	Red-Red-Yl. Disc. Diode Load
63	100Ω	½	6R6018	BW-½-100	Br.-Blk.-Br. AF Cathode
64	4.7 Meg.	½	6R2122	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
65	100KΩ	½	6R6075	BTS-100K	Br.-Blk.-Yl. AF Plate Load
66	1200Ω	½	6R6393	BTS-1200	Br.-Red-Red Bias Network
67	1200Ω	½	6R6393	BTS-1200	Br.-Red-Red " "
68	470KΩ	½	6R6032	BTS-470K	Yl.-Vi.-Yl. Output Grid
69	150Ω	½	6R6293	BW-½-150	Br.-Grn.-Br. Output Cathode
70	1000Ω	2	6R476004	BT-2-1000	Br.-Blk.-Red Filter
71	180Ω	2	6R3968	BW-2-180	Br.-Gray-Br. "
72	27Ω	2	6R3994	BW-2-27	Red-Vi.-Blk. Surge Limiter
73	22KΩ	½	6R6028	BTS-22K	Red-Red-Or. 3rd IF Transformer Shunt

TRANSFORMER (OUTPUT)

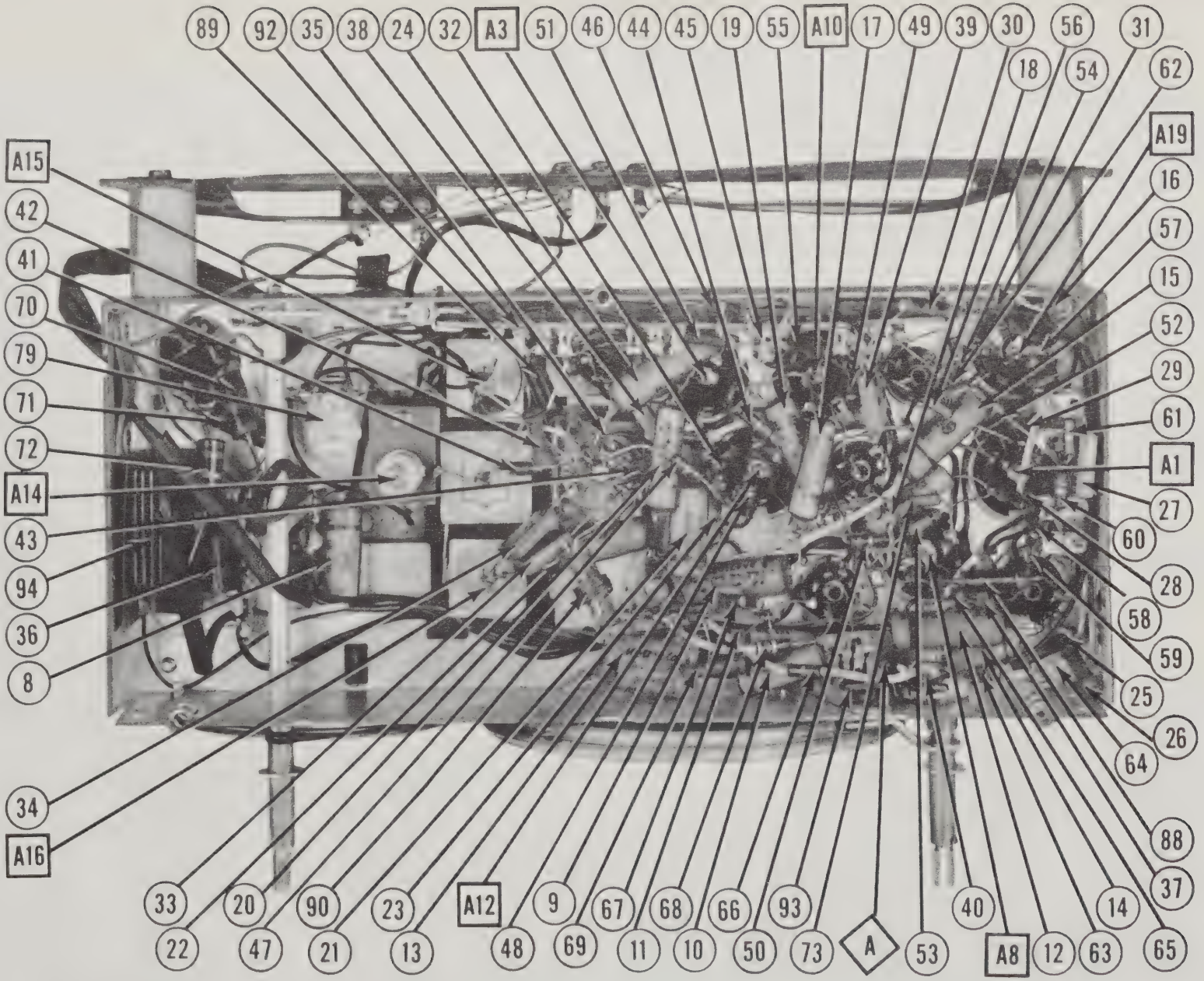
ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
74	2850Ω	4.2Ω	240Ω	.6Ω	25K471947	A-3876†	T22S45†	A-2928†	†Fabricate new mounting bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
75	FIELD	VC IMP.	50K471004			
	PM	4.2Ω				
	CONE DIA.	VC DIA.				
76	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: MEISSNER PART No.	
77	Loop Ant.		2.3Ω	24K470598		
78	FM Ant.Coil		0Ω			Items 78, 80 and 81 are part of tuning assembly PT-14.
79	BC Osc.Coil	1Ω	9Ω	24A470556	14-1040	
80	FM Osc.Coil		0Ω			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PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA MEISSNER PART No.	
81	FM Var. IF		0Ω			
82	AM Input IF	13Ω	13Ω	24B75487		
83	FM 1st IF	3Ω	3Ω	24B471668		
84	AM Output IF	14Ω	14Ω	24B471666		
85	FM 2nd IF	1Ω	1Ω	24B471670		
86	FM 3rd IF	1Ω	1Ω	24B471672		
87	FM Dis.	4Ω	3Ω	24B471674		
88	RF Choke		.1Ω	24A74989		
89	" "		.1Ω	24A74989		
90	" "		13Ω	24A470505		

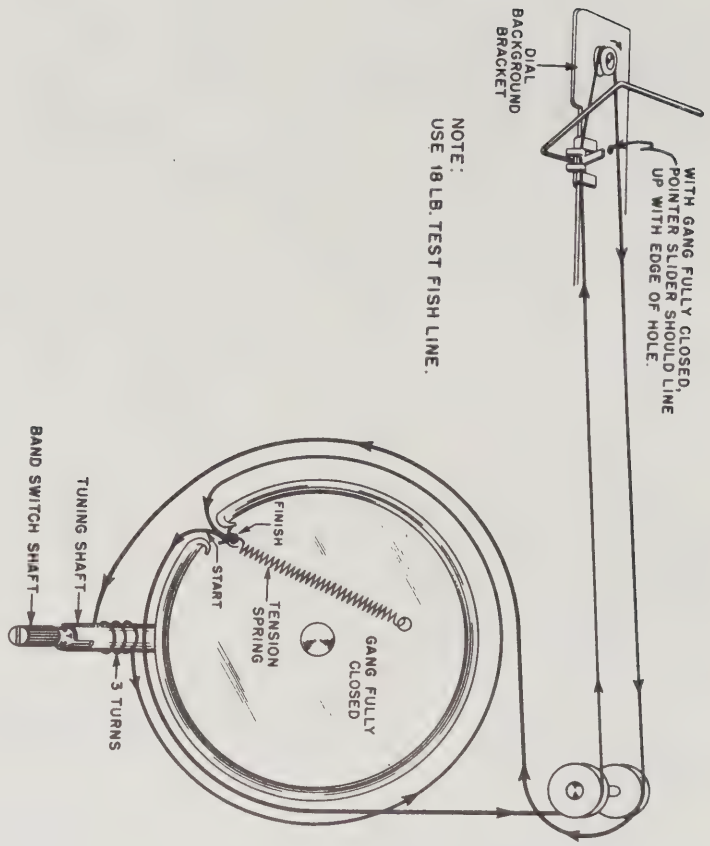
DIAL LIGHT

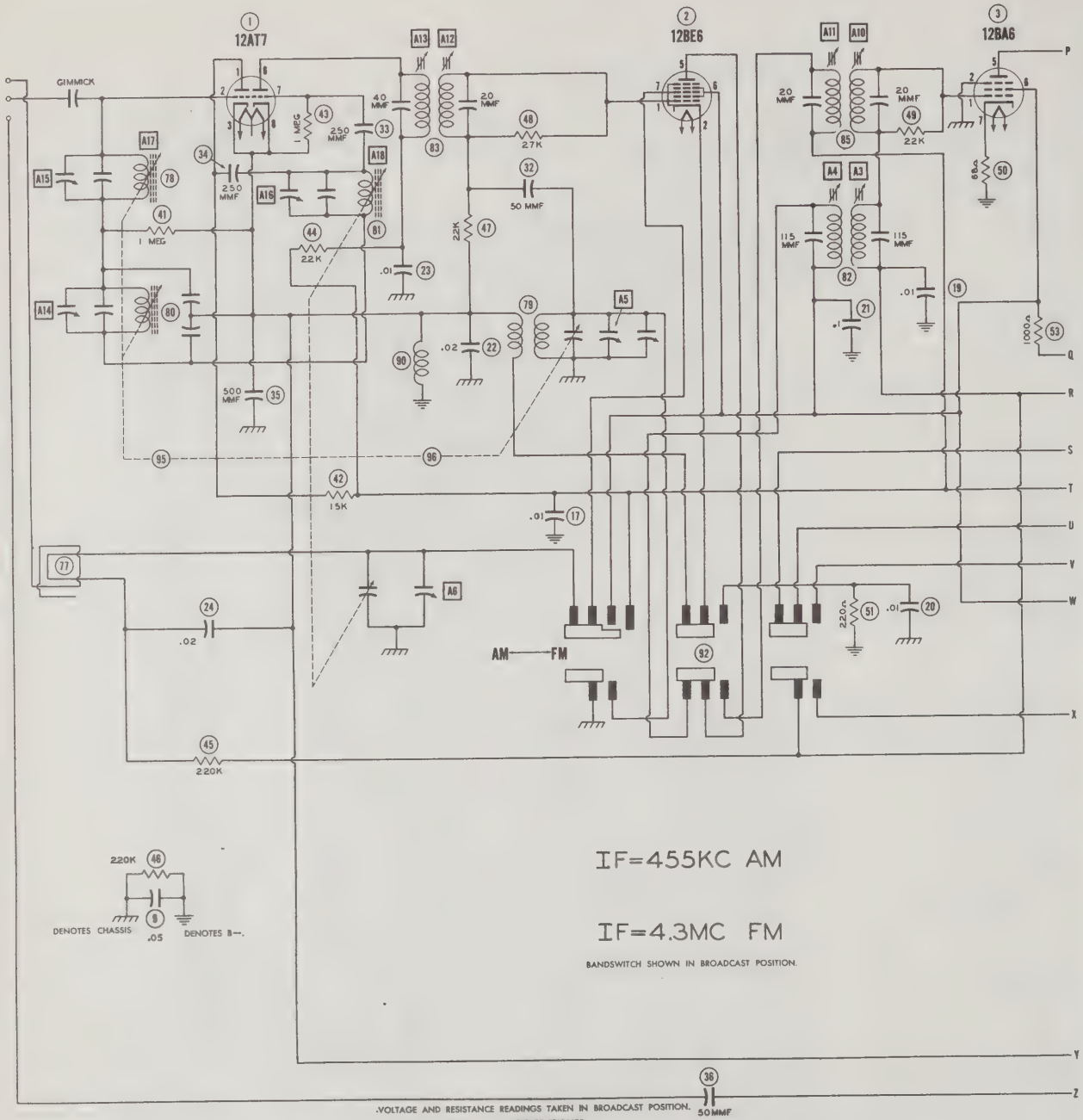
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA MOTOROLA PART No.		INSTALLATION NOTES
91	Screw	120			65A470930		Type C7

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
92	Switch	40B470432	Band
93	"	40K21758	Tone
94	Rectifier	48B90140	Selenium
95	Tuning Assby.	PT-14	
96	2 Gang Var. Cap.	19K75415	(43-481 MMF, 22-189 MMF)
A14	Trimmer	19A470426	FM Osc. Adj.
	Dial Pointer	52A77307	(Includes slider assby.)

DIAL CORD DRIVE





220K (46)

(9) .05

DENOTES CHASSIS — DENOTES B—.

IF=455KC AM

IF=4.3MC FM

BANDSWITCH SHOWN IN BROADCAST POSITION.

.VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
‡	1	12AT7	62VDC	-1VDC	0V.	34.5VAC	20VAC	50VDC	-1.6VDC§	0V.	27VAC
	2a	12BE6	-9.5VDC§	.05VDC	34.5VAC	47VAC	95VDC	95VDC	-.6VDC	-	-
‡	2b	12BE6	0V.	1.2VDC	34.5VAC	47VAC	78VDC	78VDC	78VDC	-	-
	3	12BA6	-.4VDC	0V.	47VAC	55VAC	85VDC	95VDC	.8VDC	-	-
‡	4	12BA6	0V.	0V.	55VAC	70VAC	68VDC	68VDC	.8VDC	-	-
	5a	19T8	-.3VDC	-.3VDC	.2VDC	0V.	20VAC	-.4VDC	.2VDC	-.3VDC	60VDC
‡	5b	19T8	0V.	0V.	0V.	0V.	20VAC	-.4VDC	.2VDC	-.3VDC	50VDC
	6	50B5	0V.	6VDC	117VAC	70VAC	112VDC	95VDC	0V.	-	-

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

§TAKEN WITH VACUUM TUBE VOLTMETER.

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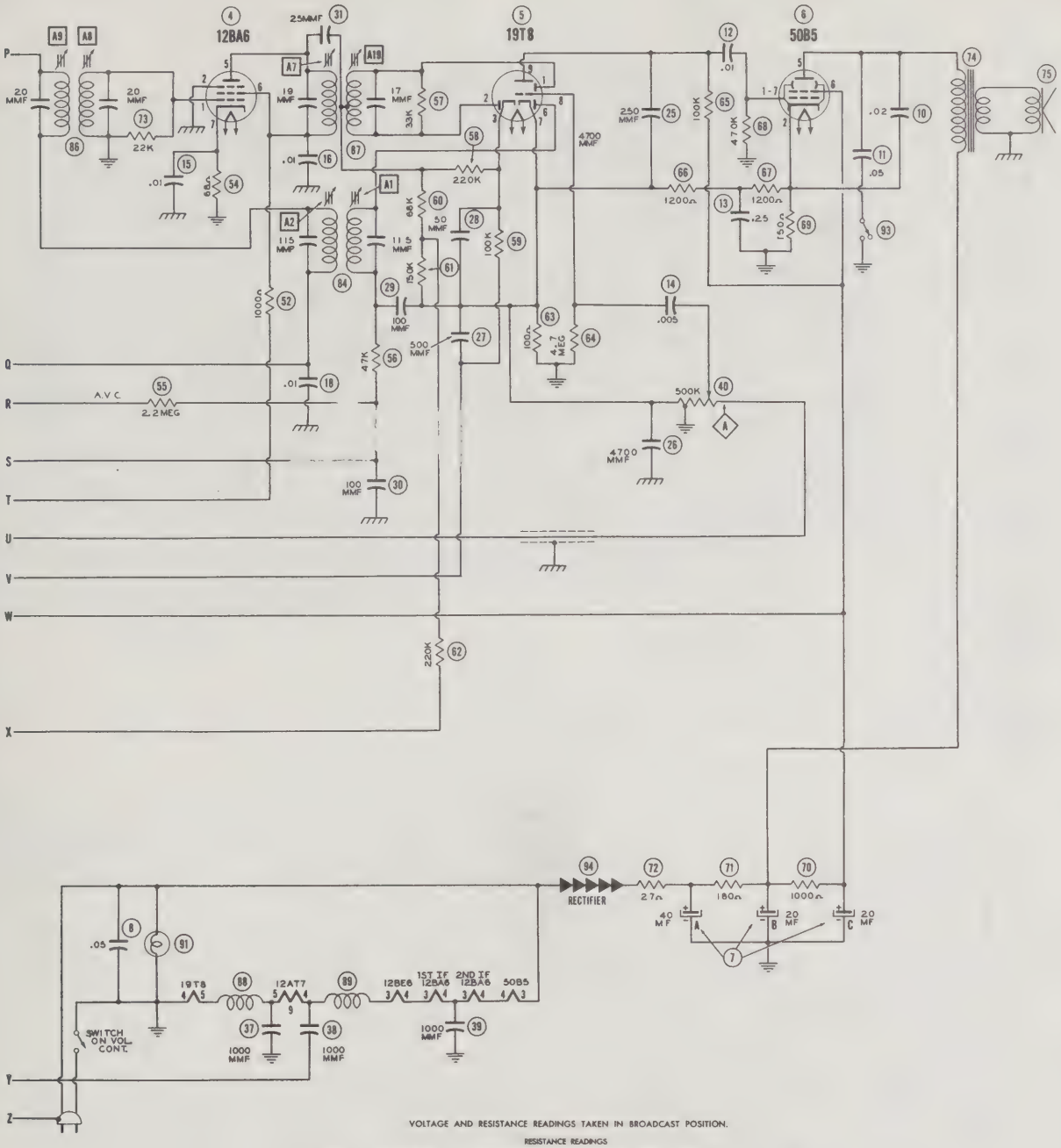

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
‡ 1	12AT7	50KΩ	1 Meg.	13Ω	27Ω	18Ω	57KΩ	1 Meg.	13Ω	23Ω
2a	12BE6	22KΩ	13.5Ω	27Ω	34Ω	35KΩ	35KΩ	2.5 Meg.	-	-
‡ 2b	12BE6	22KΩ	220Ω	27Ω	34Ω	35KΩ	35KΩ	35KΩ	-	-
3	12BA6	2.5 Meg.	220KΩ	34Ω	41Ω	35KΩ	35KΩ	70Ω	-	-
‡ 4	12BA6	1Ω	220KΩ	41Ω	49Ω	35KΩ	35KΩ	75Ω	-	-
5a	19T8	210KΩ	210KΩ	400KΩ	0Ω	18.1Ω	500KΩ	80Ω	5 Meg.	135KΩ
‡ 5b	19T8	160KΩ	160KΩ	230KΩ	0Ω	18Ω	2 Meg.	80Ω	5 Meg.	135KΩ
6	50B5	500KΩ	150KΩ	76Ω	49Ω	35KΩ	35KΩ	500KΩ	-	-

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Before starting alignment set dial pointer per dial cord drawing.
Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 1 (grid) 12BE6. Low side to B-.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2	.1 MFD.	"	1620KC	"	"	"	A5	Adjust for maximum output. Trimmer opposite A5 is a factory adjustment and normally need not be adjusted.
3		Loop	1400KC	"	Tune for maximum output.	"	A6	Adjust for maximum output

FM ALIGNMENT USING AM SIGNAL GENERATOR AND OUTPUT METER

Use amplitude modulated signal 400~30% modulation.
Once the discriminator secondary has been adjusting (A19) no adjustment of the FM circuits should be attempted with an AM signal.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
4	.001MFD	High side to Pin 7 (grid) 12AT7. Low side to B-.	4.3MC	FM	Tuning slugs fully out.	Across voice coil	A7,A8, A9,A10 A11,A12 A13	Preset A13 by turning it out as far as possible. Then adjust A7 through A13 for maximum output.
5	DIRECT	Disconnect link on FM Ant. terminals. High side to ext. FM ant. terminal. Low side to B-.	98MC	"	Turn tuning control until bakelite pieces of tuning unit are spaced 1-9/32" apart.	"	A14	Set spacing between osc. core and bakelite piece to which it is attached to two turns from tight by turning osc. core slotted nut. Then adjust A14 for maximum output.
6	DIRECT	"	90MC	"	Tune for maximum output.	"	A15, A16	Adjust for maximum output.
7	DIRECT	"	105MC	"	"	"	A17,A18	Adjust for maximum output. Repeat Steps 6 & 7 until no further improvement can be made.
8	DIRECT	"	105MC	"	"	"	A15,A16	Adjust for maximum output
9		Reconnect FM ant. link. Use radiation loop.	"	"	"	"	A15	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
10	.001 MFD	High side to Pin 7 (grid) 12AT7. Low side to B-.	4.3MC	"	Tuning slugs fully out.	"	A19	Adjust for minimum output

FM ALIGNMENT USING FM SIGNAL GENERATOR, OSCILLOSCOPE AND OUTPUT METER

Connect sync. sweep voltage from sig. gen. in series with 500KΩ potentiometer to horizontal input terminal of scope. Connect .002 MFD from horizontal input terminal to scope ground.
With adjustment of the potentiometer a single pattern should be obtained on scope. If not vary values of the potentiometer and the capacitor until this is possible. A single pattern should be used for all adjustments with scope.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4	.001MFD	High side to Pin 1 (grid) 12BA6 3rd IF Tube (4). Low side to B-.	4.3MC (freq. mod. 60~250KC sweep)	FM	Tuning slugs fully out.	Vertical input to Point A. Ground to B-.	A7	Adjust for maximum amplitude of pattern per Fig. 1.
5	.001MFD	"	"	"	"	"	A19	Adjust for symmetrical pattern with peaks occuring at about 100KC above and below 4.3MC with maximum straightness of pattern between peaks. Repeat Steps 4 & 5 until no further improvement can be made.
6	.001MFD	High side to Pin 1 (grid) 12BA6 2nd IF Tube (3). Low side to B-.	4.3MC (freq. mod. 60~200KC sweep)	"	"	"	A8,A9	Adjust for maximum straightness between peaks with peaks occuring at a slightly lower deviation.
7	.001MFD	High side to pin 1 (grid) 12BE6. Low side to B-.	"	"	"	"	A10,A11	Adjust for symmetrical pattern with maximum linearity between peaks.
8	DIRECT	Disconnect FM ant. link. High side to ext. FM ant. terminal. Low side to B-.	"	"	"	"	A12, A13	"
9	DIRECT	"	98MC (freq. mod. 400~22½KC deviation)	"	Turn tuning control until bakelite pieces of tuning unit are 1-9/32" apart.	Across voice coil	A14	Set spacing between osc. core and the bakelite piece to which it is attached to two turns from tight by turning osc. core slotted nut. Then adjust A14 for maximum output.
10	DIRECT	"	90MC	"	Tune for maximum output.	"	A15, A16	Adjust for maximum output
11	DIRECT	"	105MC	"	"	"	A17, A18	Adjust for maximum output. Repeat Steps 10 & 11 until no further improvement can be made.
12	DIRECT	"	"	"	"	"	A15, A16	Adjust for maximum output.
13		Reconnect FM Ant. link. Use radiation loop.	"	"	"	"	A15	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

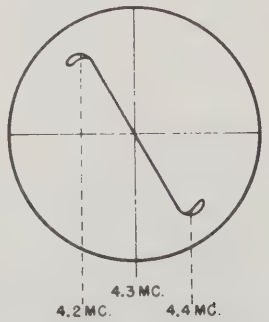
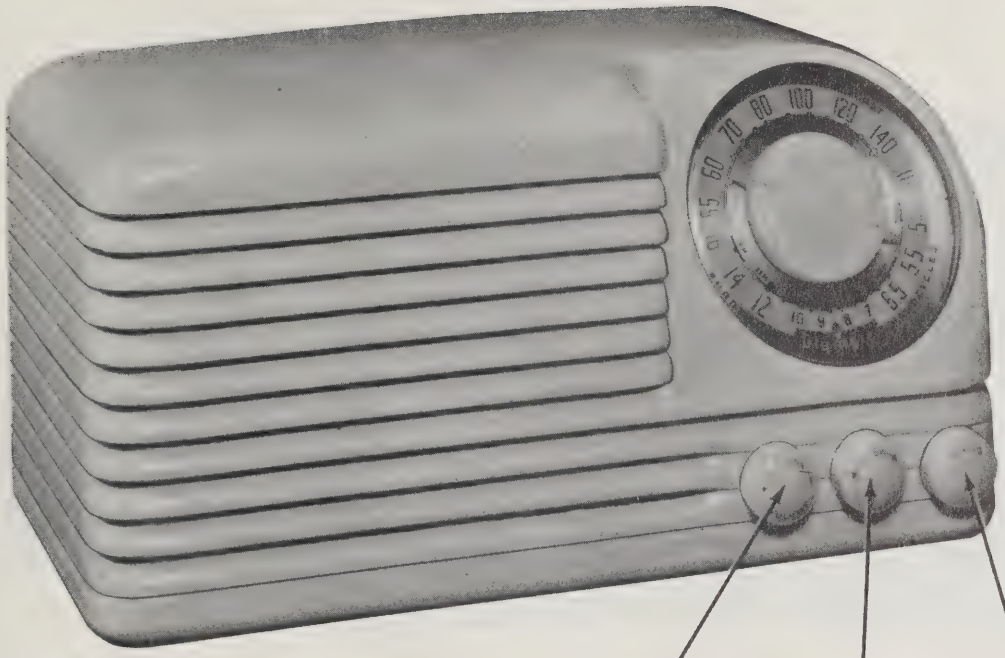


FIG. 1

OLYMPIC MODELS
7-435V, 7-435W



OLYMPIC MODELS
7-435V, 7-435W

OLYMPIC MODEL 7-435V

TRADE NAME	Olympic, Models 7-435V, 7-435W
MANUFACTURER	Olympic Radio & Tele. Corp., 3101-19 38th Ave., Long Island City, N.Y.
TYPE SET	AC-DC Operated 2 Band Superheterodyne with Loop Antenna
TUBES (FIVE)	Types, 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC
TUNING RANGE—BROADCAST	540-1650KC
RATING	.26 Amp. @ 117 Volts AC
SHORT WAVE	4.8-16.4MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin8 (grid) 12SA7. Low side to B-.	455KC	BC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2	200MMFD	High side to ext. ant. lead. Low side to chassis.	1600KC	"	1600KC	"	A5	Adjust for maximum output
3	200MMFD	"	1400KC	"	Tune for maximum output.	"	A6	" " " "
4	200MMFD	"	600KC	"	"	"	A7	Rock tuning cap. and adjust for maximum output. Repeat Steps 2, 3 & 4 until no further improvement can be made.
5	400Ω carbon res.	"	15MC	SW	15MC	"	A8	Adjust for maximum output
6	"	"	14MC	"	Tune for maximum output.	"	A9	Rock tuning cap. and adjust for maximum output.

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DATE 2/48 SET #34 FOLDER #484-13

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		OLYMPIC PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	OLYMPIC PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
6A	40	150	CO-107	DSB-2x40-150	TA-440	PRSA150-40-40	EDL4415	Filter-Red
B	40	150						" -Blue
7	.05	400		MPH-4-05	TC-15	484-05	DT4S5	Line Filter
8	.01	600		S-6-01	TC-11	684-01	DT6S1	Output Plate Bypass
9	.01	600		S-6-01	TC-11	684-01	DT6S1	Audio Coupling
10	.01	600		S-6-01	TC-11	684-01	DT6S1	" "
11	.02	400		S-4-02	TC-12	484-02	DT4S2	AVC Filter
12	.05	400		S-4-05	TC-15	484-05	DT4S5	RF Bypass Pwr. Supply
13	.005	600		S-6-005	TC-25	684-005	DT6D5	Line Isolation
14	.1	400		S-4-1	TC-1	484-.1	DT4P1	" " *
15	.01	600		S-6-01	TC-11	684-01	DT6S1	Ext. Ant. Isolation
16	47			M0.5-45	1FM-45	1468-45	5W5J5	Osc. Grid Cap.
17	4000			MW.5-24	1FM-24	1467-004	1D5D4	Fixed Pad
18	100			M0.5-31	1FM-31	1468-0001	5W5T1	RF Coupling
42	330			M0.5-34	1FM-34	1468-0004	5W5T4	AF Plate Bypass

*Wind same number turns on replacement as on original.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	IRC PART No.	CLAROSTAT PART No.	
19A	500KΩ	½	PT-102	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 19A per instructions
C	Switch		" "	41	SW-A	" " " " "

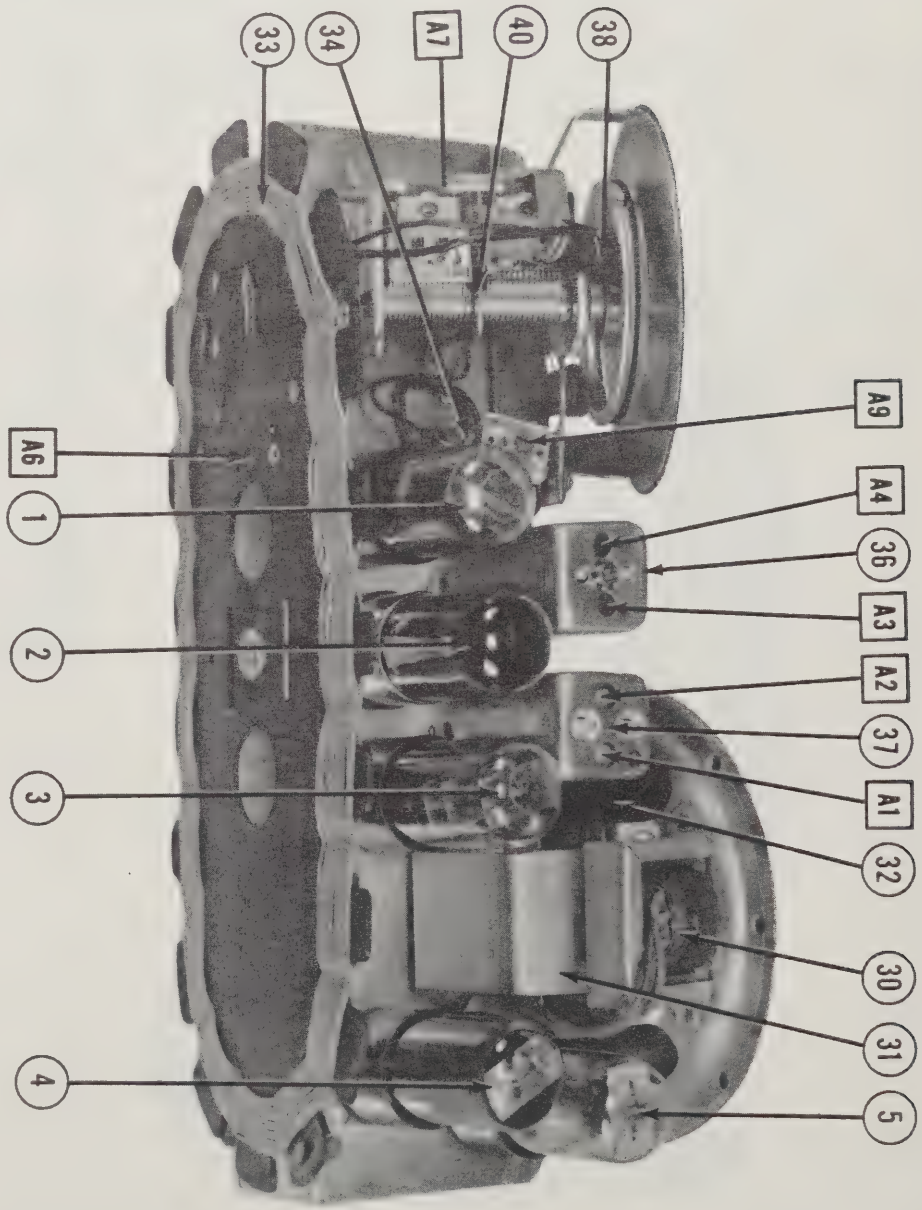
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	OLYMPIC PART No.	IRC PART No.	
20	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
21	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
22	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
23	220KΩ	½		BTS-220K	Red-Red-Yl. Line Isolation
24	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid
25	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
26	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
27	150Ω	½		BW-½-150	Br.-Grn.-Br. Output Cathode
28	1000Ω	2		BT-2-1000	Br.-Blk.-Red Filter
29	220Ω	1		BW-1-220	Red-Red-Br. Pilot Light Shunt

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		OLYMPIC PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
30	1900Ω	3.6Ω	166Ω tapped @ 6Ω	.5Ω	Part of SK-838	A-3876#		A-2928#	#Add extra filter to reduce hum level.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			OLYMPIC PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD RES.	VC IMP.		ST-105†		†Drill and tap magnet frame.
31	PM	3.6Ω	SK-838	Mod. P5-X	5A1‡	‡Drill new mounting holes.
	CONE DIA.	VC DIA.				
32	4-3/4"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

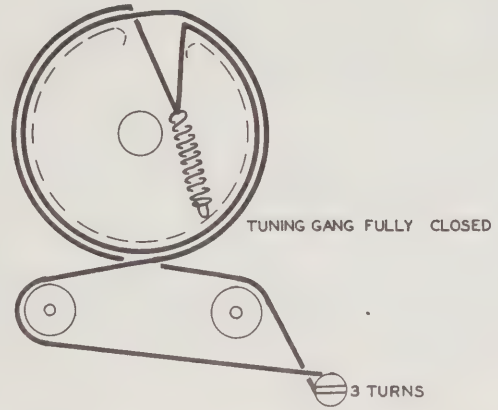
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.
33	Loop Ant.	0Ω	1.2Ω	LP937	
34	SW Ant.Coil	.2Ω	0Ω		14-1044
35A	BC Osc.Coil	.5Ω	5.2Ω		
B	SW " "	0Ω	0Ω		
36	Input IF	18.5Ω	18.5Ω	TR707	16-6666
37	Output IF	18.5Ω		TR708	16-6670

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					OLYMPIC PART No.		
38	Bayonet	6-8	0.15	Brown			Type 47

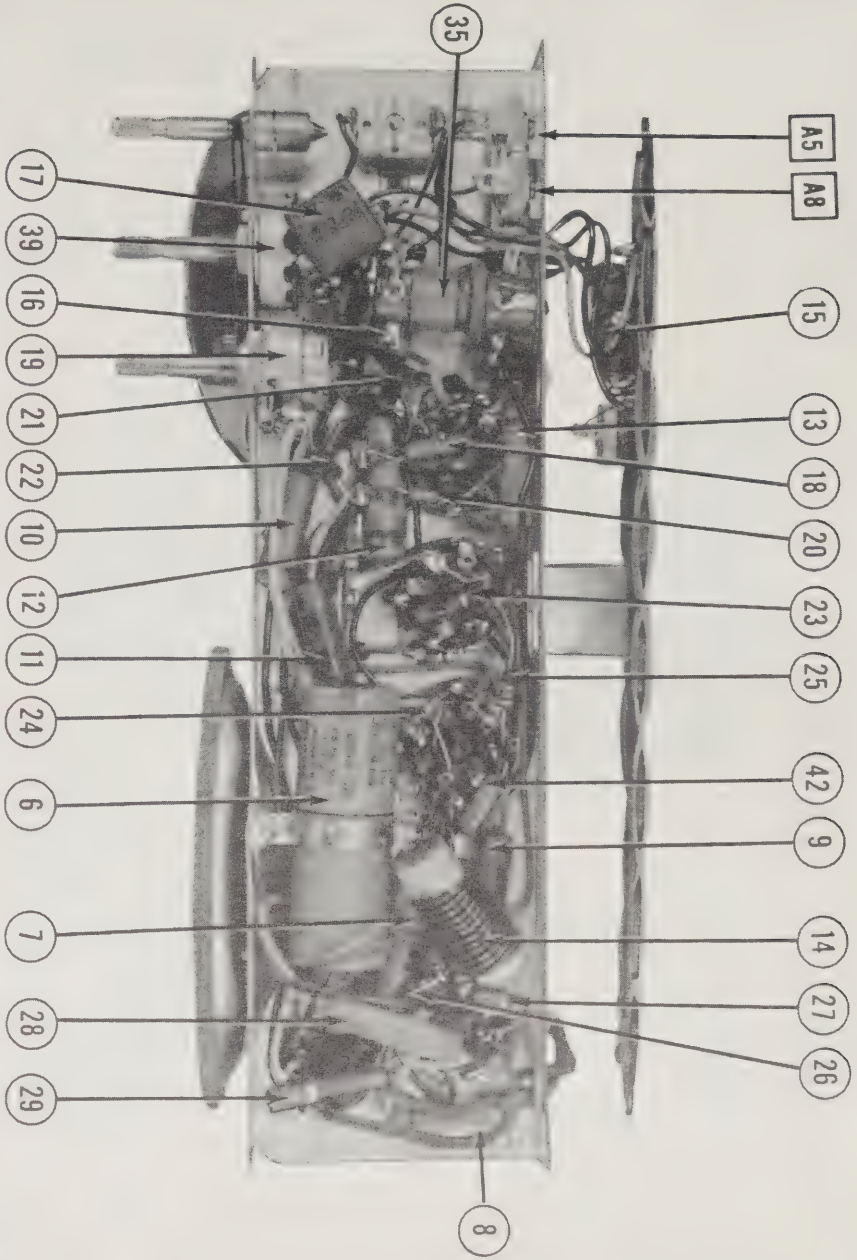
MISCELLANEOUS

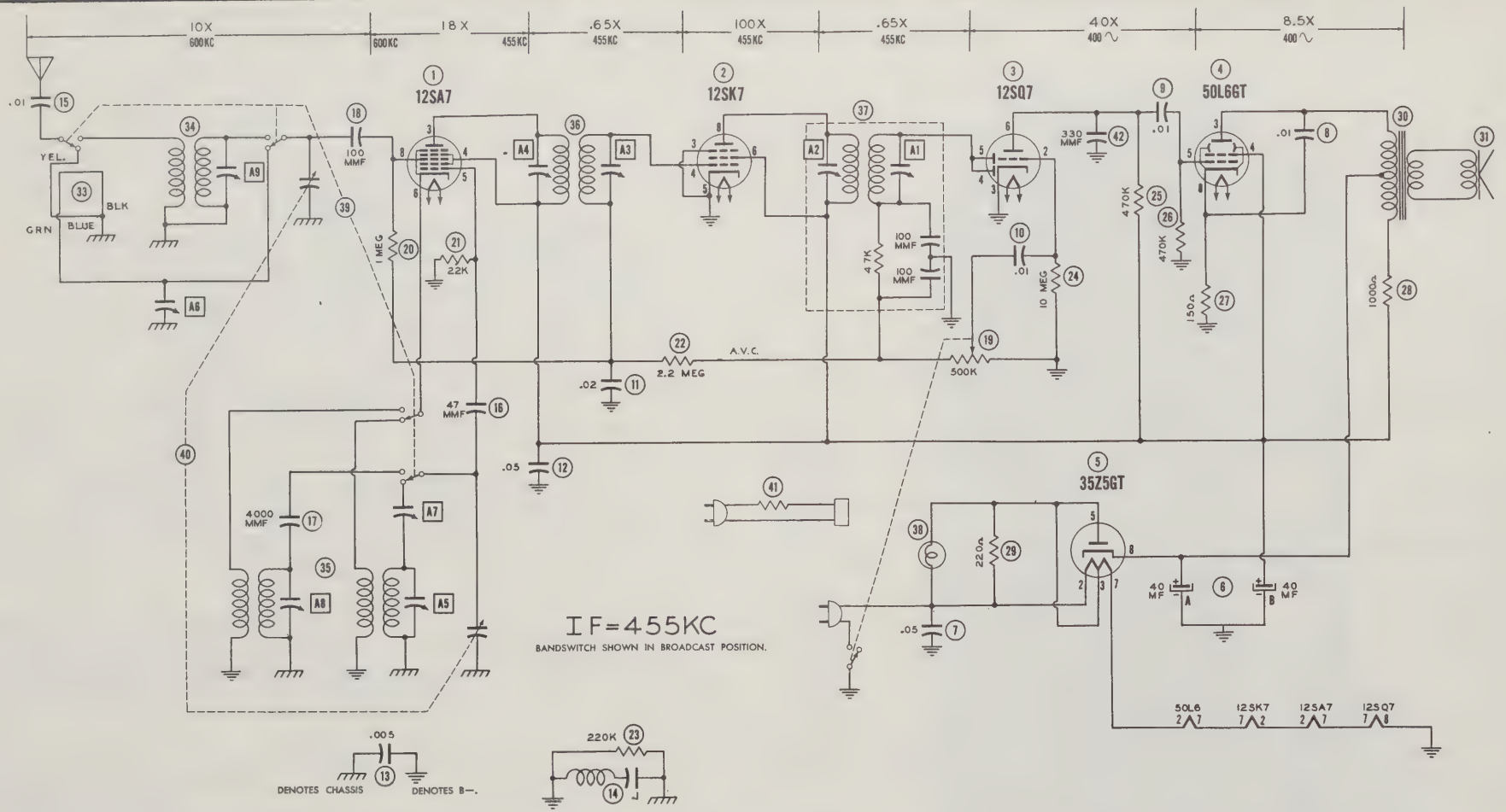
ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
39	Switch		Band
40	2 Gang Var. Cap.	CV772	(15-455MMF) each section
41	Line Cord	LC530	(For 230V operation)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS — VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	27VAC	100VDC	100VDC	-9.5VDC§	0V.	13VAC	-.4VDC
2	12SK7	0V.	27VAC	0V.	-.4VDC	0V.	100VDC	39VAC	100VDC
3	12SQ7	0V.	-1VDC	0V.	-.6VDC	-.6VDC	48VDC	13VAC	0V.
4	50L6	0V.	87VAC	115VDC	100VDC	0v.	0V.	39VAC	6.4VDC
5	35Z5	0V.	117VAC	114VAC	0V.	114VAC	125VDC	87VAC	125VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	220KΩ	25Ω	200KΩ	200KΩ	25KΩ	.5Ω	12.5Ω	4 Meg.
2	12SK7	220KΩ	25Ω	0Ω	3 Meg.	0Ω	200KΩ	37Ω	200KΩ
3	12SQ7	220KΩ	10 Meg.	0Ω	540KΩ	540KΩ	670KΩ	12.5Ω	0Ω
4	50L6	INF.	86Ω	200KΩ	200KΩ	500KΩ	0Ω	37Ω	150Ω
5	35Z5	INF.	115Ω	112Ω	0Ω	112Ω	200KΩ	86Ω	200KΩ

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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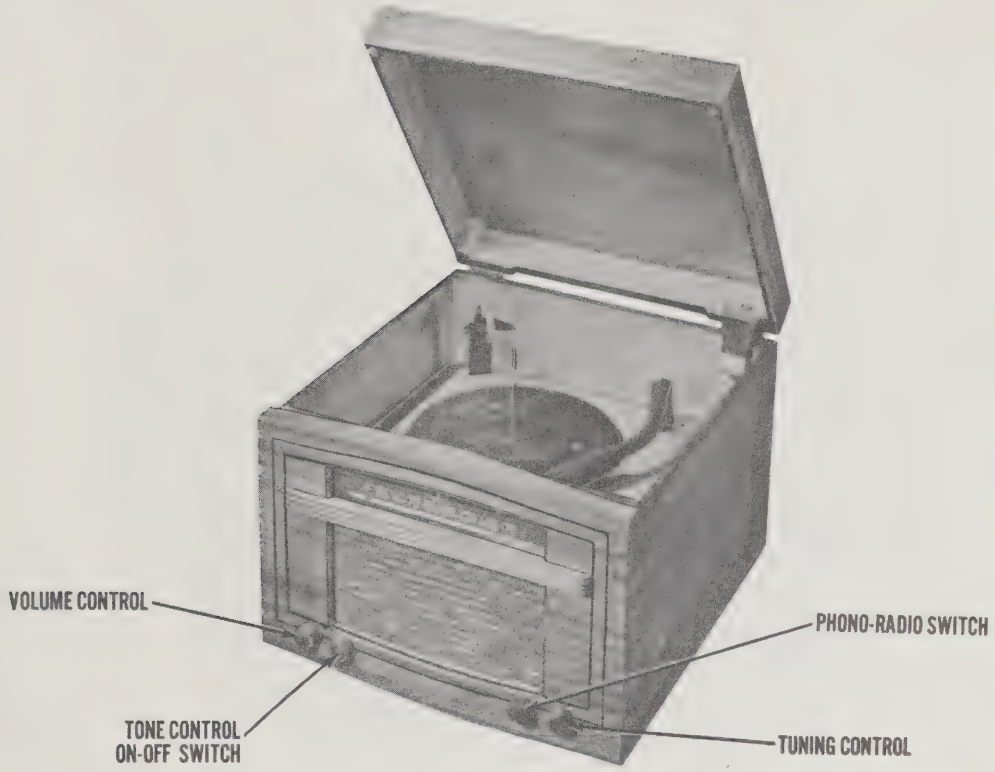
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

OLYMPIC MODELS
7-622, 7-638



OLYMPIC MODELS
7-622, 7-638

OLYMPIC MODEL 7-622

TRADE NAME	Olympic, Models 7-622, 7-638
MANUFACTURER	Olympic Radio & Tele. Corp., 3101-19 38th Ave., Long Island City, N.Y.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SA7GT Converter, 12SG7 IF Amp., 12SQ7 Det.-AVC-AF, (2) 35L6GT Power Output.
POWER SUPPLY	105-125 Volts AC
TUNING RANGE—BROADCAST	537-1700KC RATING .37 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

There are five reference dots on dial backplate. Reading from left to right they are end limit (tuning cap. closed), 600KC, 1000KC, 1400KC and 1700KC. To set Pointer turn tuning cap. fully closed and set left edge of pointer saddle to end limit mark at left end of dial backplate.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation. Repeat adjustments.
2		Loop	1400KC	Left edge of pointer saddle to 1400KC reference mark. (4th mark from left).	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	"	Tune for maximum output.	"	A6	Adjust for maximum output. Check calibration and sensitivity at 600KC.

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PARTS LIST AND DESCRIPTIONS

OLYMPIC MODELS 7-[illegible], 7-[illegible]

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SG7	12SG7	8BK	
3	Det.-AVC-AF	12SQ7	12SQ7	8Q	
4	Phase Inv.	12SQ7	12SQ7	8Q	
5	Power Output	35L6GT	35L6GT	7AC	
6	" "	35L6GT	35L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	50	150	C0701	DSB-403020-150	UT-501	PRS150-50	E242215	Filter - Blue
B	20	150						" - Grn.
C	40	150		M-20-150	TA-240	PRSA150-20-40	BR3015	" - Red
8	.05	400	RCP10W4503A	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.005	600	RCP10W6502A	S-6-005	TC-25	684-005	DT6D5	Output Plate Bypass
10	.005	600	RCP10W6502A	S-6-005	TC-25	684-005	DT6D5	" " "
11	.005	600	RCP10W6502A	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
12	.005	600	RCP10W6502A	S-6-005	TC-25	684-005	DT6D5	" "
13	.005	600	RCP10W6502A	S-6-005	TC-25	684-005	DT6D5	" "
14	.005	600	RCP10W6502A	S-6-005	TC-25	684-005	DT6D5	" "
15	.002	600	RCP10W6202M	S-6-002	TC-22	684-002	DT6D2	Tone Comp.
16	.002	600	RCP10W6202M	S-6-002	TC-22	684-002	DT6D2	" "
17	.005	600	RCP10W6502A	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
18	.25	400	RCP10W4254A	S-4-25	TC-2	484-.25	DT4P25	Phono Isolation
19	.1	400	RCP10W4104L	S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supply
20	.02	400	RCP10W4203A	S-4-02	TC-12	484-02	DT4S2	AVC Filter
21	.25	400	RCP10W4254A	S-4-25	TC-2	484-.25	DT4P25	Line Isolation
22	.01	600	RCP10W6103A	S-6-01	TC-11	684-01	DT6S1	Ext. Ant. Coupling
23	220		RCM20A221M	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass

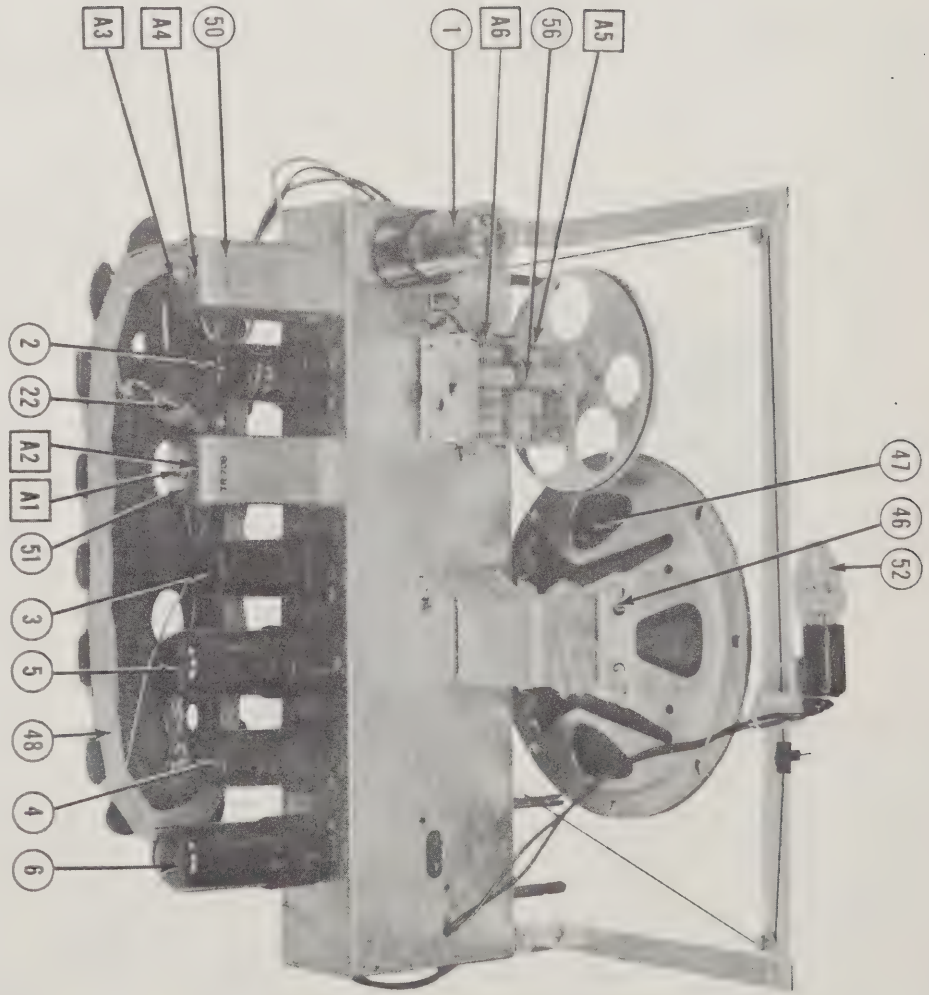
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
24A	2 Meg.	½	PT-793	D13-139X	AT-115	Volume Control tapped @ 500KΩ
B	Shaft		Not Req.	E	KSS-3	Attach to 24A per instructions
25A	3 Meg.	½	PT-794	D13-140	AM-67-Z	Tone Control
B	Shaft		Not Req.	E	KSS-3	Attach to 25A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: OLYMPIC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
26	220KΩ	½	REB-224M	BTS-220K	Red-Red-Yl. Line Isolation
27	22KΩ	½	REB-223M	BTS-22K	Red-Red-Or. Oscillator Grid
28	6.8 Meg.	½	REB-685M	BTS-6.8 Meg.	Blue-Gray-Grn. AVC Network
29	2.2 Meg.	½	REB-225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
30	470KΩ	½	REB-474M	BTS-470K	Yl.-Vi.-Yl. Diode Load
31	330KΩ	½	REB-334M	BTS-330K	Or.-Or.-Yl. Series Phono
32	150KΩ	½	REB-154M	BTS-150K	Br.-Grn.-Yl. Phono Shunt
33	220KΩ	½	REB-224M	BTS-220K	Red-Red-Yl. Tone Compensation
34	6.8 Meg.	½	REB-685M	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
35	470KΩ	½	REB-474M	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
36	470KΩ	½	REB-474M	BTS-470K	Yl.-Vi.-Yl. Phase Inverter Plate Load
37	6.8 Meg.	½	REB-685M	BTS-6.8 Meg.	Blue-Gray-Grn. Phase Inverter Grid
38	470KΩ	½	REB-474M	BTS-470K	Yl.-Vi.-Yl. Output Grid
39	470KΩ	½	REB474M	BTS-470K	Yl.-Vi.-Yl. Output Grid
40	10KΩ	½	REB103M	BTS-10K	Br.-Blk.-Or. Output Grid
41	100Ω	1	REC101M	BW-1-100	Br.-Blk.-Br. Output Cathode
42	1000Ω	2	RED102M	BT-2-1000	Br.-Blk.-Red Filter
43	100Ω	1	REC101M	BW-1-100	Br.-Blk.-Br. Filter
44	27Ω	2	RCD270K	BW-2-27	Red-Vi.-Blk. Surge Limiter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		OLYMPIC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
45	4900Ω CT	3.5Ω	280Ω CT	.4Ω	TR-818	A-3856	T22858*	A-2900	*Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			OLYMPIC PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-109†		†Drill and tap magnet frame.
46	PM	3.5Ω	SK-792	Mod. P6-W	6A21‡	‡Drill new mounting holes.
	CONE DIA.	VC DIA.				
47	6"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	OLYMPIC PART No.	MEISSNER PART No.	
48	Loop Ant.	0Ω	1Ω	LP951		
49	Osc. Coil	.5Ω	6Ω	CL869	14-1040#	#Add 50MMFD from osc. grid to high side tuning cap.
50	Input IF	20.5Ω	20.5Ω	TR707	16-6666	
51	Output IF	18.5Ω		TR708	16-6670	

DIAL LIGHT

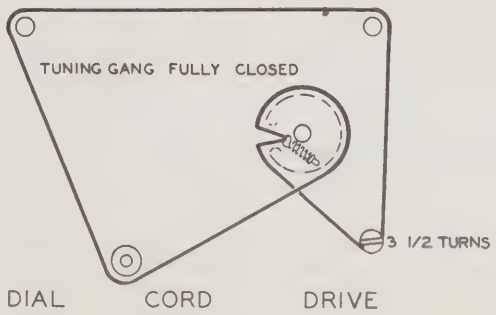
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					OLYMPIC PART No.		
52	Screw	110			BU910		Type C-7

PHONO CARTRIDGE

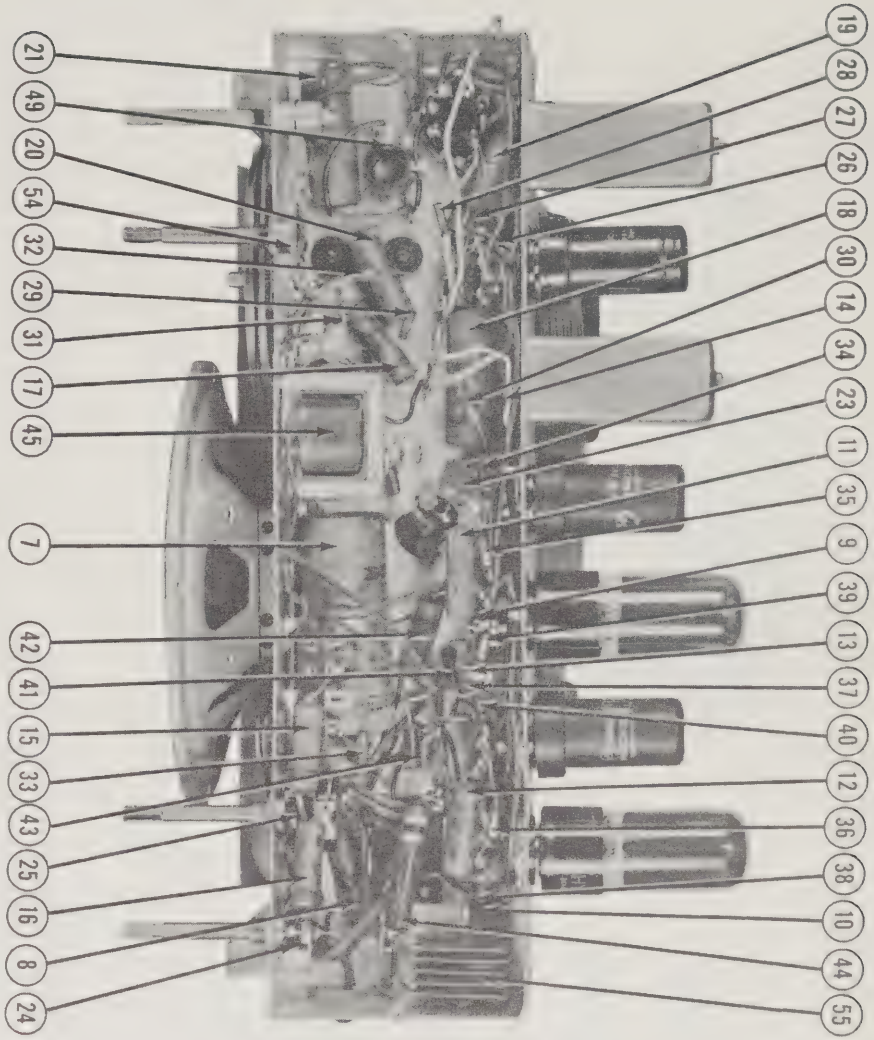
ITEM No.	REPLACEMENT DATA		REMARKS
	OLYMPIC PART No.	ASTATIC PART No.	
53		L-70-A	L-70 original part.

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
54	Switch	SW141	Radio-Phono
55	Rectifier	RF845	Selenium
56	2 Gang Var. Cap.	CV769	(15-459 MMF, 28-193MMF)
	Dial Scale	DL913	Glass
	Dial Pointer	PO959	

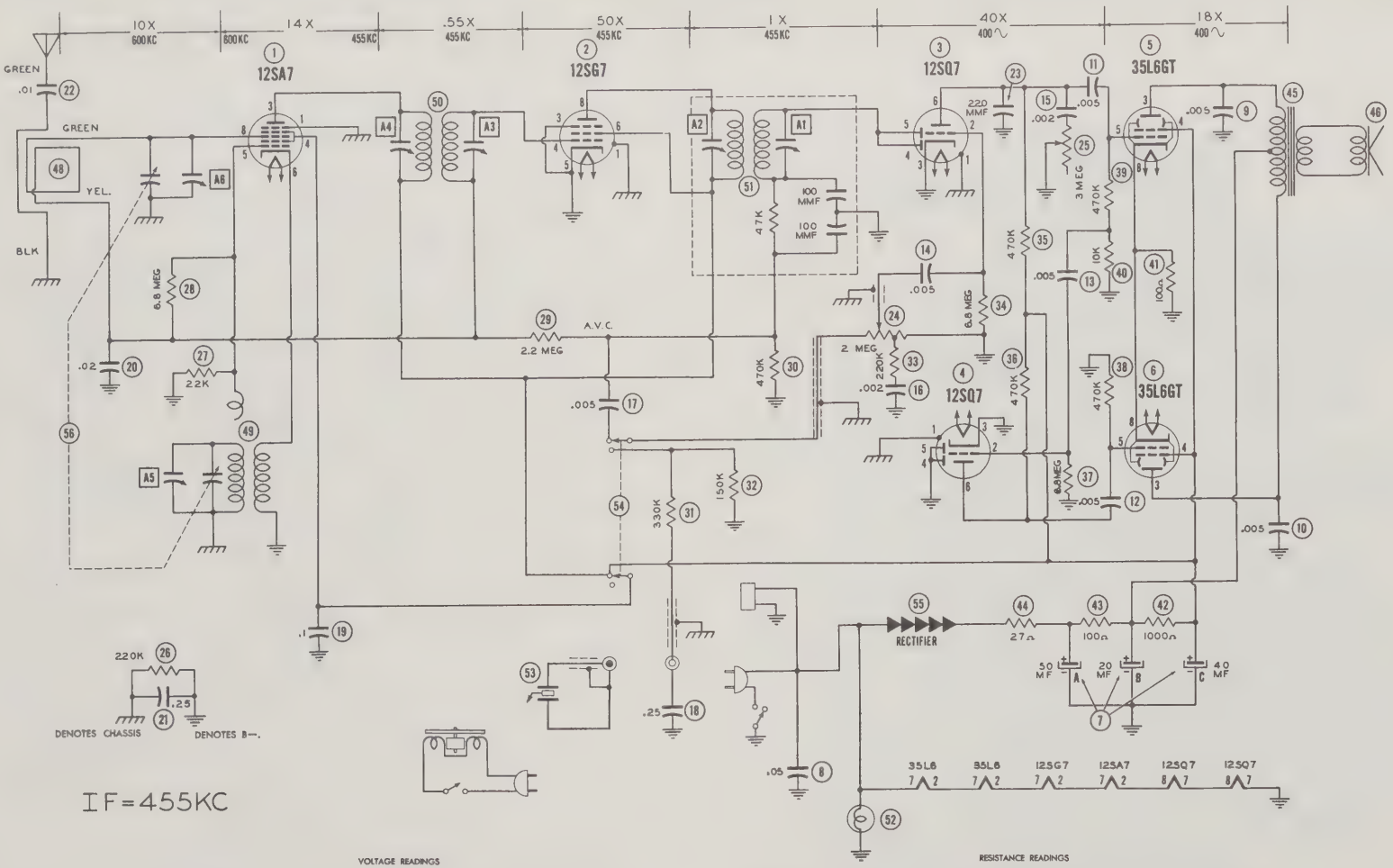


CHASSIS—BOTTOM VIEW



OLYMPIC MODELS 7-625, 7-633

OLYMPIC MODELS 7-625, 7-633



IF=455KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	24VAC	102VDC	102VDC	-12VDC§	0V.	37VAC	-.5VDC
2	12SG7	0V.	37VAC	0V.	-.5VDC	0V.	102VDC	48VAC	102VDC
3	12SQ7	0V.	-.6VDC	0V.	-.4VDC	-.4VDC	55VDC	0V.	12VAC
4	12SQ7	0V.	-.6VDC	0V.	0V.	0V.	55VDC	12VAC	24VAC
5	35L6GT	0V.	48VAC	117VDC	102VDC	0V.	0V.	83VAC	6.4VDC
6	35L6GT	0V.	83VAC	118VDC	102VDC	0V.	0V.	117VAC	6.4VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	240KΩ	22Ω	20KΩ	20KΩ	20KΩ	.5Ω	32Ω	2.5 Meg.
2	12SG7	240KΩ	32Ω	0Ω	2.5 Meg	0Ω	20KΩ	41Ω	20KΩ
3	12SQ7	240KΩ	7 Meg.	0Ω	500KΩ	500KΩ	490KΩ	0Ω	12Ω
4	12SQ7	240KΩ	7 Meg.	0Ω	0Ω	0Ω	490KΩ	12Ω	22Ω
5	35L6GT	INF.	41Ω	20KΩ	20KΩ	480KΩ	INF.	60Ω	90Ω
6	35L6GT	INF.	60Ω	20KΩ	20KΩ	470KΩ	0Ω	80Ω	90Ω

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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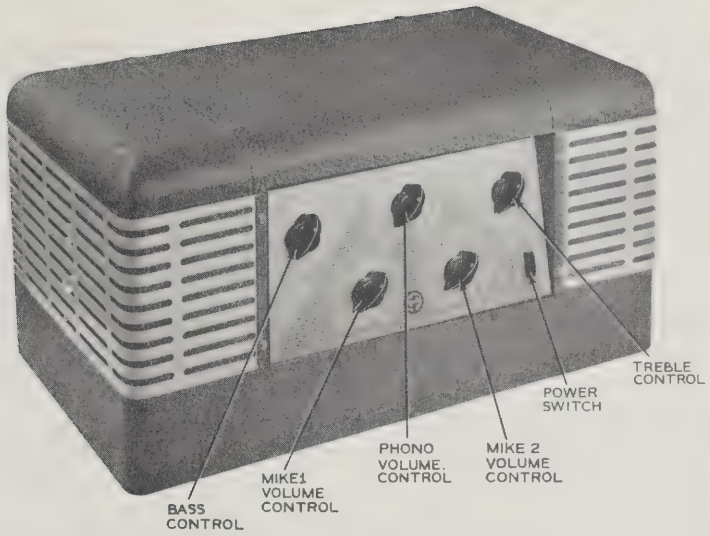
484-14

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



OPERADIO MODEL 1A30

TRADE NAME	Operadio, Model 1A30
MANUFACTURER	Operadio Manufacturing Co., St. Charles, Ill.
TYPE SET	AC Operated Three Channel Audio Amplifier
TUBES (SEVEN)	Types, (2) 6J7 Mic. Pre-Amp., 6SN7GT AF-Phase Inv., 6J7 AF Amp., (2) 6L6G Power Output, 5V4G Rectifier.
POWER SUPPLY	105-125 Volts AC RATING 1.1 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6J7	0V.	3.1VAC	62VDC	22VDC	0V.	205VDC	3.1VAC	0V.	-.6VDC
2	6J7	0V.	3.1VAC	65VDC	24VDC	0V.	205VDC	3.1VAC	0V.	-.5VDC
3	6J7	0V.	3.1VAC	107VDC	70VDC	2.4VDC	0V.	3.1VAC	2.4VDC	0V.
4	6SN7GT	0V.	100VDC	3VDC	0V.	75VDC	2VDC	3.1VAC	3.1VAC	-
5	6L6G	0V.	3.1VAC	390VDC	300VDC	0V.	0V.	3.1VAC	24VDC	-
6	6L6G	0V.	3.1VAC	390VDC	300VDC	0V.	0V.	3.1VAC	24VDC	-
7	5V4G	0V.	380VDC	0V.	320VAC	0V.	320VAC	0V.	380VDC	-

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	6J7	0Ω	.05Ω	310KΩ	1.5 Meg.	0Ω	35KΩ	.05Ω	0Ω	10 Meg.
2	6J7	0Ω	.05Ω	310KΩ	1.5 Meg.	0Ω	35KΩ	.05Ω	0Ω	10 Meg.
3	6J7	0Ω	.05Ω	125KΩ	500KΩ	1.5KΩ	INF.	.05Ω	1.5KΩ	700KΩ
4	6SN7GT	10KΩ	70KΩ	1KΩ	600KΩ	70KΩ	650Ω	.05Ω	.05Ω	-
5	6L6G	0Ω	.05Ω	10KΩ	12KΩ	110KΩ	INF.	.05Ω	160Ω	-
6	6L6G	0Ω	.05Ω	10KΩ	12KΩ	100KΩ	INF.	.05Ω	160Ω	-
7	5V4G	INF.	12KΩ	INF.	58Ω	INF.	54Ω	INF.	12KΩ	-

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All control at minimum, proper output load connected.

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DATE 2/48 SET #34 FOLDER #484-15

PARTS LIST AND DESCRIPTIONS

OPERADIO MODEL 1A3C

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		OPERADIO PART No.	STANDARD REPLACEMENT		
1	Mic.-Pre. Amp.	6J7	6J7	7R	
2	Mic.-Pre. Amp.	6J7	6J7	7R	
3	1st AF Amp.	6J7	6J7	7R	
4	2nd AF-PhaseInv.	6SN7GT	6SN7GT	8BD	
5	Power Output	6L6G	6L6G	7AC	
6	" "	6L6G	6L6G	7AC	
7	Rectifier	5V4G	5V4G	5L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	OPERADIO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
8	40	500	1992002-406	DY-3x20-450‡*	EL-344*	AF444J‡*	UP2250*	Filter
9A	10	450	1999002-000	DY-2x10-450	EL-210	AF22J	UP1145	▲ Filter
B	10	450						■ "
10A	10	450	1999002-000	DY-2x10-450	EL-210	AF22J	UP1145	▲ "
B	10	450						■ "
11	20	150	1992016-206	M-20-150	UT-201	PRS150-20	BR2015	Cathode Bypass
12	20	25	1992001-206	M-25-25	TA-25	PRS25-25	BR202A	" "
13	.006	600	1994030-602	MPH-6-005	TC-26	684-006	DT6D6	Line Filter
14	.1	400	1994021-104	S-4-1	TC-1	484-.1	DT4P1	Audio Coupling
15	.1	400	1994021-104	S-4-1	TC-1	484-.1	DT4P1	" "
16	.1	400	1994021-104	S-4-1	TC-1	484-.1	DT4P1	" "
17	.1	400	1994021-104	S-4-1	TC-1	484-.1	DT4P1	1st AF Screen Bypass
18	.0001	600	1994030-101	MO.5-31	TC-31	1468-0001	DT6T1	Tone Comp.
19	.001	600	1994030-102	S-6-001	TC-21	684-001	DT6D1	" "
20	.00025	600	1994030-25	S-6-00025	TC-325	1468-00025	DT6T25	" "
21	.002	600	1994030-202	S-6-002	TC-22	684-002	DT6D2	" "
22	.01	400	1994020-103	S-4-01	TC-12	484-01	DT4S5	Audio Coupling
23	.01	400	1994020-103	S-4-01	TC-12	484-01	DT4S5	Pre-Amp. Screen Bypass
24	.006	600	1994030-602	S-6-006	TC-26	684-006	DT6D6	Mic. Coupling
25	.01	400	1994020-103	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
26	.01	400	1994020-103	S-4-01	TC-11	484-01	DT4S1	Pre-Amp. Screen Bypass
27	.006	600	1994030-602	S-6-006	TC-26	684-006	DT6D6	Mic. Coupling

*Parallel sections to obtain desired capacity.
‡Omit one section.

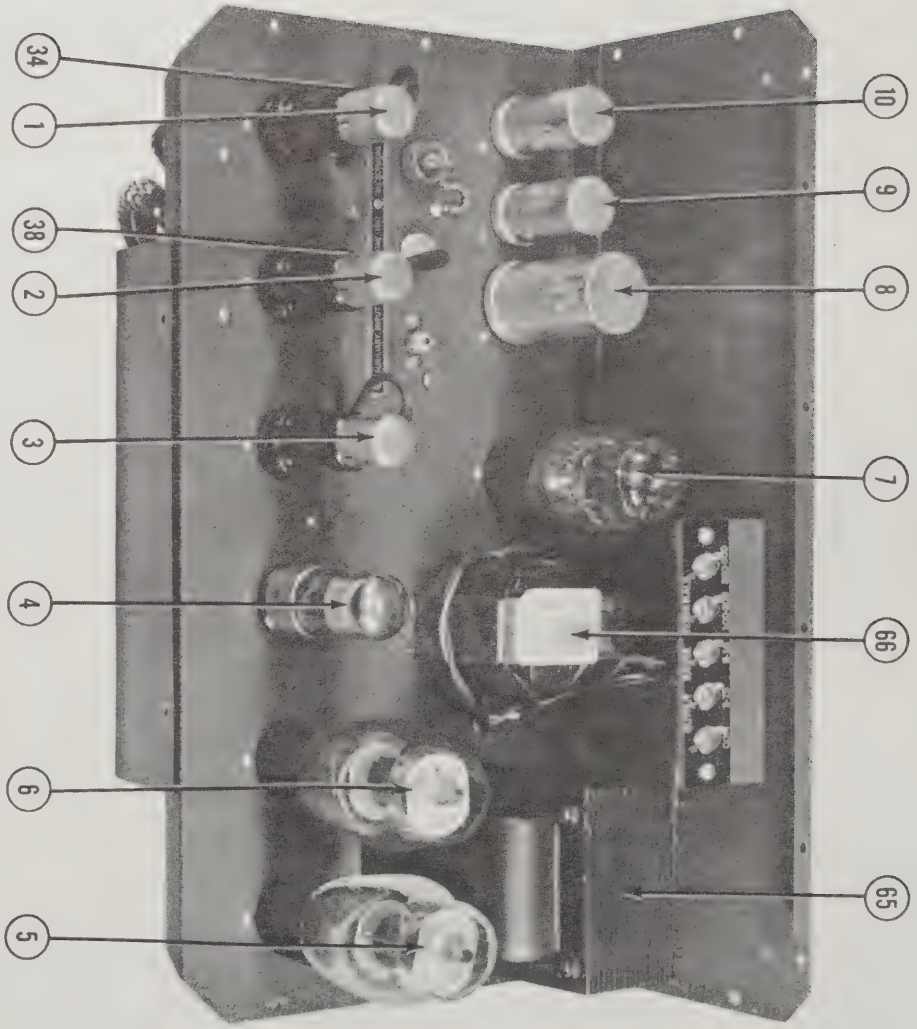
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	OPERADIO PART No.	IRC PART No.	CLAROSTAT PART No.	
28A	500KΩ	½	601-3289	D13-133	M-60-Z	Mike 1 Control
B	Shaft		Not Req.	A	Not Req.	Attach to 28A per instructions
29A	500KΩ	½	601-3289	D13-133	M-60-Z	Mike 2 Control
B	Shaft		Not Req.	A	Not Req.	Attach to 29A per instructions
30A	2.5 Meg.	½	601-3589	D13-140	M-67-Z	Phono Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 30A per instructions
31	2.5 Meg.	½	601-10			Bass Control
32A	300KΩ	½	601-11	D13-130	M-64-Z	Treble Control
B	Shaft		Not Req.	A	Not Req.	Attach to 32A per instructions

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	OPERADIO PART No.	IRC PART No.	
33	10 Meg.	½	600-13463	BTS-10 Meg.	Br.-Blk.-Blue 1st Mic. Amp. Grid
34	68KΩ	½	600-0043-683	BTS-68K	Blue-Gray-Or. 1st Mic. Amp. Grid
35	270KΩ	1	600-0116-274	BTA-270K	Red-Vi.-Yl. 1st Mic. Amp. Plate Load
36	1.5 Meg.	1	600-0116-155	BTA-1.5 Meg.	Br.-Grn.-Grn. 1st Mic. Amp. Screen Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	OPERADIO PART No.	IRC PART No.	
37	10 Meg.	½	600-13463	BTS-10 Meg.	Br.-Blk.-Blue 2nd Mic. Amp. Grid
38	68KΩ	½	600-0043-683	BTS-68K	Blue-Gray-Or. 2nd Mic. Amp. Grid
39	270KΩ	1	600-0116-274	BTA-270K	Red-Vi.-Yl. 2nd Mic. Amp. Plate Load
40	1.5 Meg.	1	600-0116-155	BTA-1.5 Meg.	Br.-Grn.-Grn. 2nd Mic. Amp. Screen Dropping
41	470KΩ	1	600-0116-474	BTA-470K	Yl.-Vi.-Yl. Isolation
42	470KΩ	1	600-0116-474	BTA-470K	Yl.-Vi.-Yl. "
43	470KΩ	1	600-0116-474	BTA-470K	Yl.-Vi.-Yl. "
44	470KΩ	1	600-0116-474	BTA-470K	Yl.-Vi.-Yl. Tone Compensation
45	270KΩ	1	600-0116-274	BTA-270K	Red-Vi.-Yl. " "
46	10KΩ	1	600-0116-103	BTA-10K	Br.-Blk.-Or. Decoupling
47	10KΩ	1	600-0116-103	BTA-10K	Br.-Blk.-Or. Decoupling
48	4700Ω	1	600-0116-472	BTA-4700	Yl.-Vi.-Red Decoupling
49	1500Ω	1	600-0116-152	BTA-1500	Br.-Grn.-Red 1st AF Cathode
50	470KΩ	1	600-0116-474	BTA-470K	Yl.-Vi.-Yl. 1st AF Screen Dropping
51	100KΩ	1	600-0116-104	BTA-100K	Br.-Blk.-Yl. 1st AF Plate Load
52	560KΩ	1	600-0116-564	BTA-560K	Grn.-Blue-Yl. 2nd AF Grid
53	56KΩ	2	600-0153-563	BT-2-56K	Grn.-Blue-Or. 2nd AF Plate Load
54	560Ω	1	600-0116-561	BTA-560	Grn.-Blue-Br. 2nd AF Cathode
55	82Ω	1	600-0116-820	BW-1-82	Gray-Red-Blk. 2nd AF Cathode
56	1000Ω	1	600-0116-102	BTA-1000	Br.-Blk.-Red Phase Inverter Cathode
57	56KΩ	2	600-0153-563	BT-2-56K	Grn.-Blue-Or. Phase Inverter Plate Load
58	10KΩ	1	600-0116-103	BTA-10K	Br.-Blk.-Or. Phase Inverter Grid
59	100KΩ	1	600-0116-104	BTA-100K	Br.-Blk.-Yl. Output Grid
60	100KΩ	1	600-0116-104	BTA-100K	Br.-Blk.-Yl. Output Grid
61	165Ω	10	600-9001-000	DHA-200	Output Cathode-See Note
62	10KΩ	25	600-1018-103	EP-10K	Bleeder
63	1500Ω	1	600-0116-152	BTA-1500	Br.-Grn.-Red Feedback
64	2000Ω	25	600-1018-202	EP-2000	Filter

Note-On IRC replacement set slider at 165Ω from one end.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	OPERADIO PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
65	117V AC	640V CT @ .15A	5.0V AC @ 2.0A	6.2V CT @ 3.8A	710-4019		T22R06†	

†Use universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		OPERADIO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
66	9600Ω CT	3-7.5Ω 8-16Ω 100-200Ω 250-500Ω	340Ω CT	.2Ω .4Ω 7Ω 13Ω	710-2008*		T22S66#		#Drill new mounting holes.

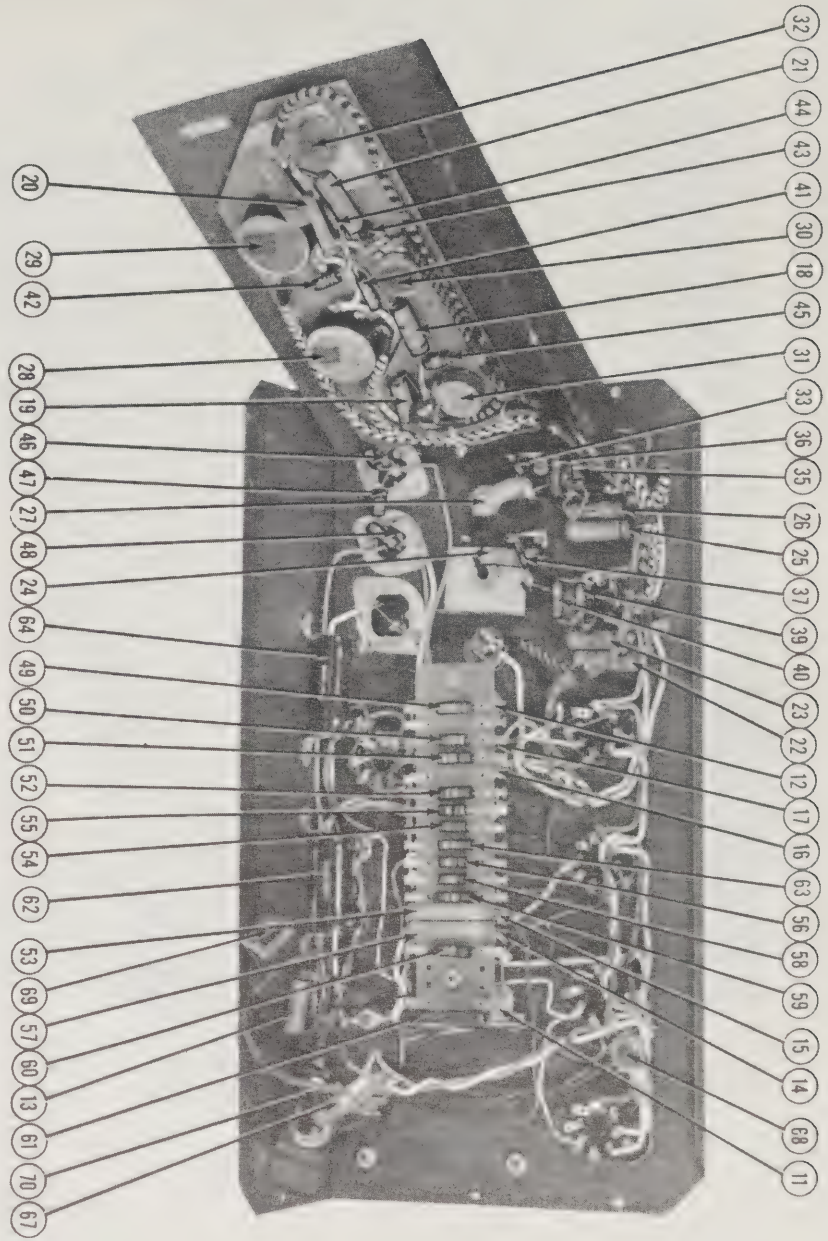
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					OPERADIO PART No.		
67	Bayonet	6-8	0.25	Blue	456-8496		Type 44
68	"	6-8	0.25	"	456-8496		" "

MISCELLANEOUS

ITEM No.	PART NAME	OPERADIO PART No.	NOTES
69	Switch	680-30	Power
70	Fuse	320-835-0300	3 Amp. 3AG

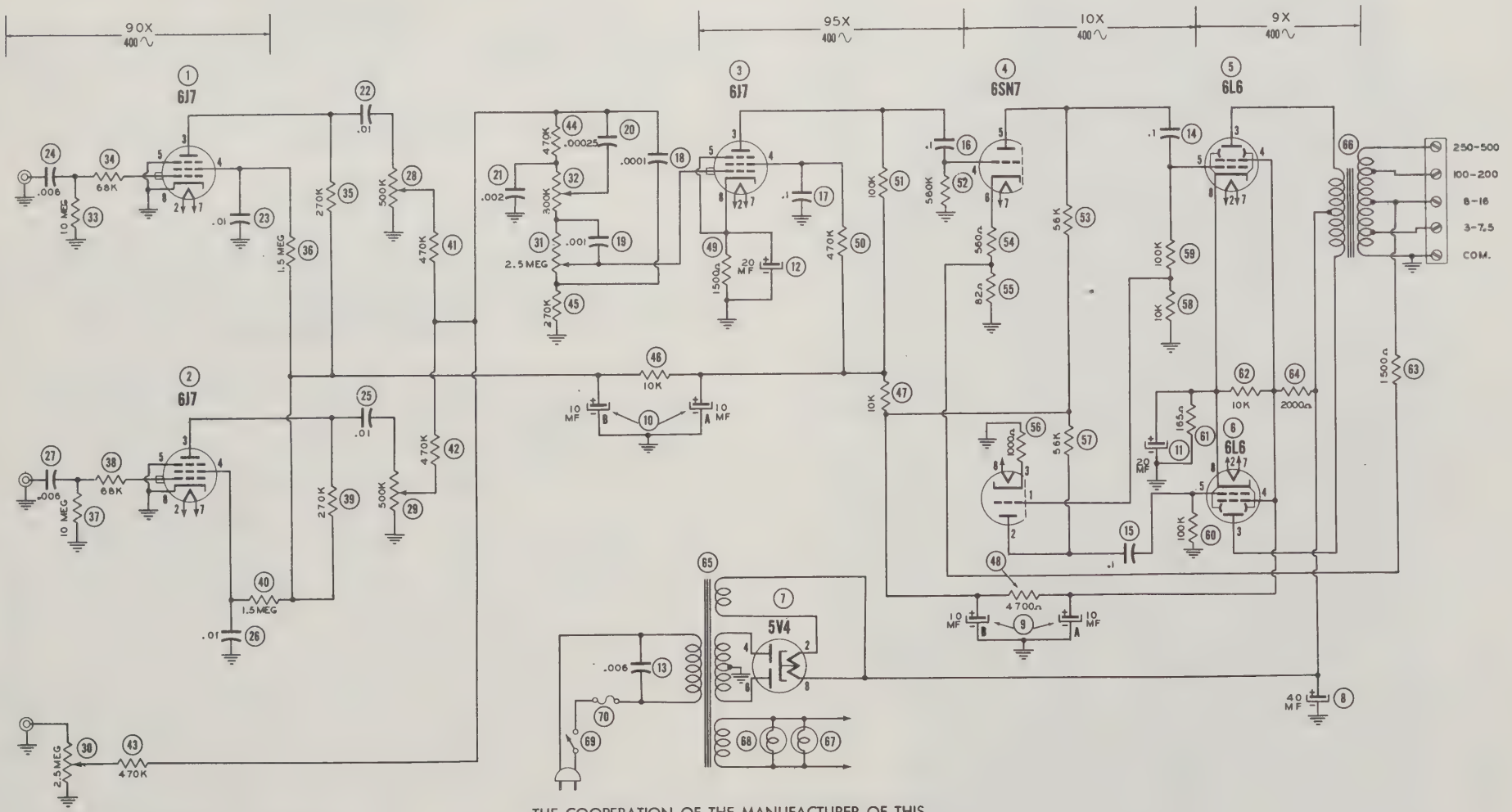
CHASSIS—BOTTOM VIEW



DATE 2/48 SST #34 FOLDER #454-15

OPERADIO MODEL 1A30

OPERADIO MODEL 1A30



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THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

PHILCO MODEL 48-150
BATTERY OPERATED

PHILCO MODEL 48-150
BATTERY OPERATED

PHILCO MODEL 48-150

TRADE NAME	Philco, Model 48-150
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES (FIVE)	Types, 1LG5 RF Amp., 1LA6 Converter, 1LN5 IF Amp., 1LH4 Det.-AVC-AF, 3LF4 Power Output.
POWER SUPPLY RATING	1.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form 300 MA @ 1.5 Volts DC and 14 MA @ 90 Volts DC
TUNING RANGE--BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and mark position of pointer. Use this as index mark referred to in Steps below. With receiver installed in cabinet set pointer to reference dot at low frequency end of dial with tuning cap. fully closed.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD	High side to front stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully closed	Across voice coil	A1,A2, A3	Tighten A3 firmly. Then adjust in order given A1, A2 and A3 for maximum output.
2	200MMFD	High side to ext. ant. lead. Low side to chassis.	600KC	1" to right of index mark	"	A4	Adjust for maximum output.
3	200MMFD	"	1700KC	5-7/8" from index mark.	"	A5	" " " "
4	200MMFD	"	1500KC	Tune for maximum output.	"	A6,A7	Adjust for maximum output.
5	200MMFD	"	600KC	"	"	A4	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 & 5 until no further improvement can be made.

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DATE 2/48 SET #34 FOLDER #484-16

PARTS LIST AND DESCRIPTIONS

PHILCO MODEL 48-150
BATTERY OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1L3*	1L3*		
2	Converter	1LA6	1LA6	7AK	
3	IF Amp.	1LN5	1LN5	7AO	
4	Det.-AVC-AF Amp.	1LH4	1LH4	5AG	
5	Power Output	3LF4	3LF4		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6	10	150	30-2540	M-10-150	UT-121	PRS150-12	BR12I5	Filter
7	.004	600	61-0179	S-6-004	TC-24	684-004	DT6D4	Output Plate Bypass
8	.002	600	45-3500-6	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
9	.002	600	45-3500-6	S-6-002	TC-22	684-002	DT6D2	" "
10	.05	200	61-0122	S-4-05	TC-15	484-05	DT4S5	AVC Filter
11	.05	200	61-0122	S-4-05	TC-15	484-05	DT4S5	IF Grid Filter
12	.05	200	61-0122	S-4-05	TC-15	484-05	DT4S5	Screen Bypass
13	.05	200	61-0122	S-4-05	TC-15	484-05	DT4S5	AVC Filter
14	100	25	30-1105407	MO.5-31	1MS-31	1468-0001	5W5T1	AF Plate Bypass
15	100	25	30-1105407	MO.5-31	1MS-31	1468-0001	5W5T1	Osc. Grid Cap.
16	10			MO.5-41	1MS-41	1468-0001	5W5T1	Rr Coupling
17	4.7		30-1231-5	MO.5-55	MS-55	1468-0005	5W5V5	" "

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	1 Meg.	2	33-5554	D16-137#	M-63-2#	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 18A per Instructions
C	Switch		" "	42	SW-A2	" " " " "

#Use original cam to actuate off-on indicator.

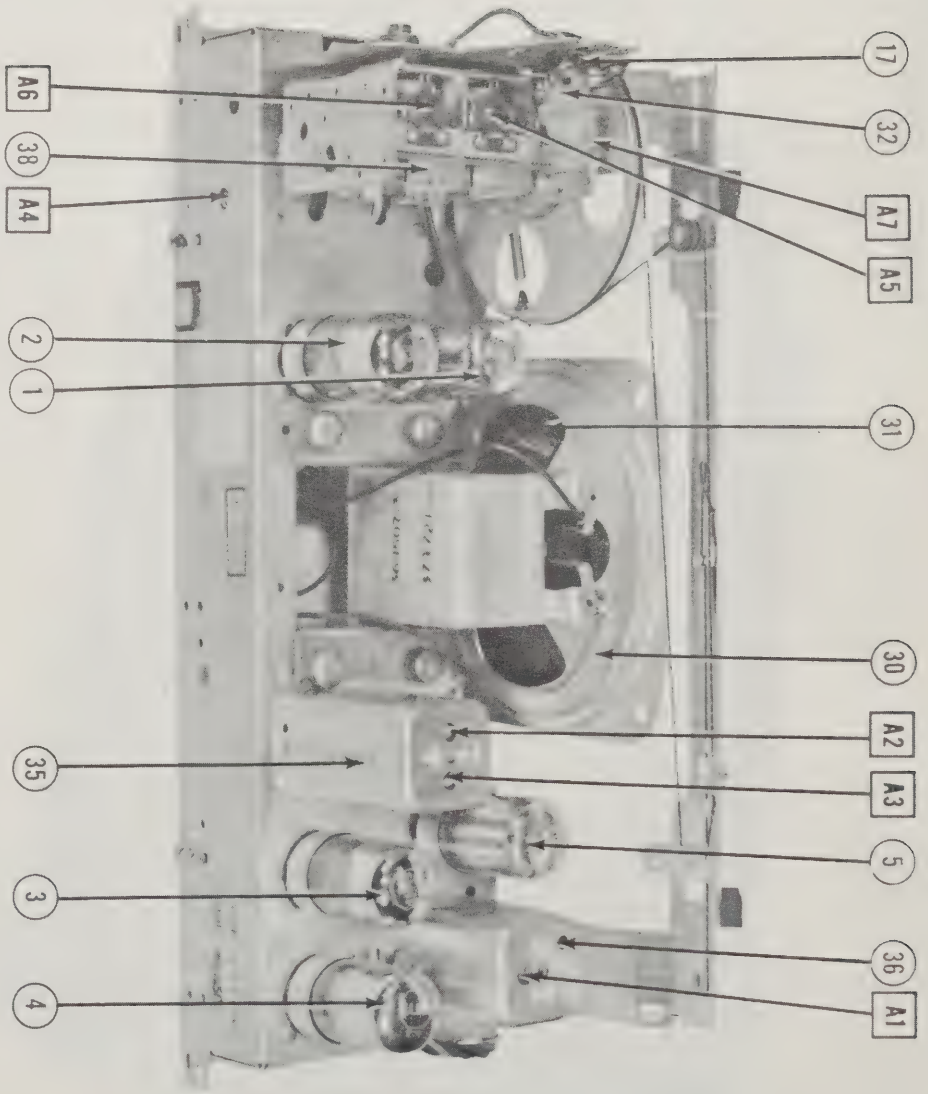
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
19	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vi.-Grn. AVC Network
20	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. Oscillator Grid
21	47KΩ	½	66-3473340	BTS-47K	Yl.-Vi.-Or. Screen Dropping
22	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. IF Grid
23	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
24	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue AVC Network
25	4.7 Meg.	½	66-5473340	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
26	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
27	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
28	470Ω	½	66-1473340	BTS-470	Yl.-Vi.-Br. Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
29	9000Ω	3.5Ω	900Ω	.9Ω	32-8323	A-3879*	T22847*	A-2932*	*Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
30	PM	3.5Ω	36-1507-3			
	CONE DIA.	VC DIA.				
31	5-1/8"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

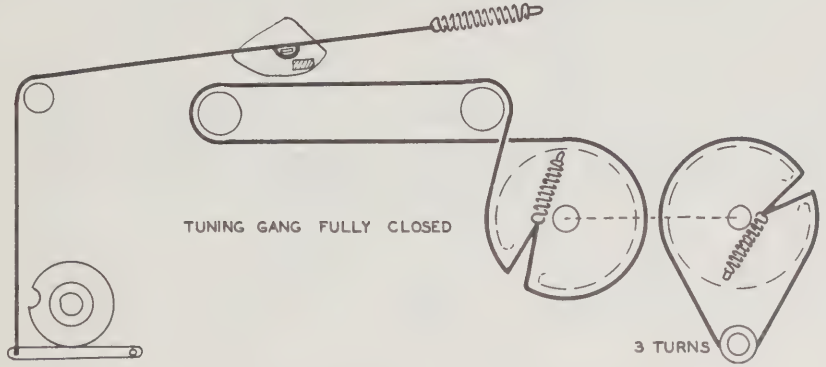
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
32	Ant. Coil	13.9Ω	2.1Ω	32-3919-3	14-1026	
33	RF Coil	80Ω	5Ω	32-3974-2	14-1027	
34	Osc. Coil	1.6Ω	5.5Ω	32-3975-3	14-1040	
35	Input IF	15Ω	17Ω	32-3949-1	16-6658	
36	Output IF	15Ω		32-3897-2	16-6670	

BATTERIES

ITEM No.	VOLTAGE	PHILCO PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
37	1.5V "A" 90V "B"	P-60D-11L			#758	

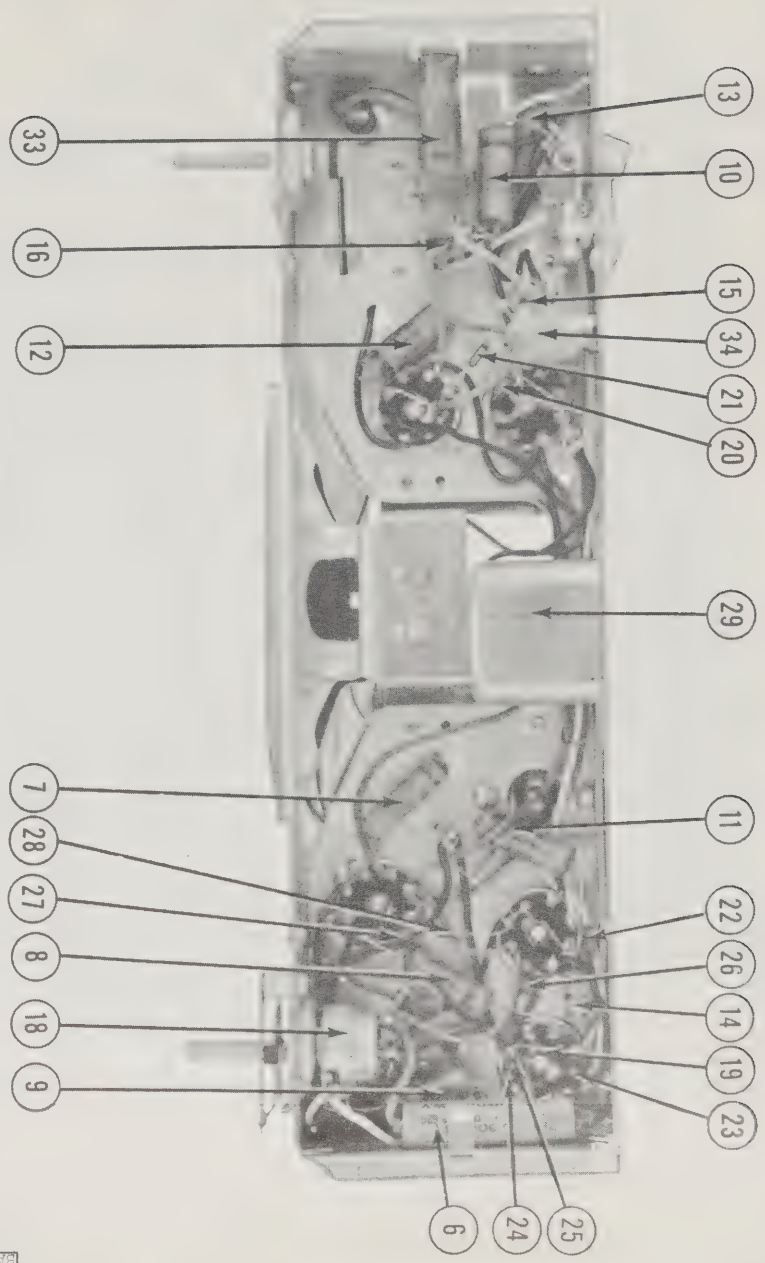
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
38	3 Gang Var.Cap.	31-2726	(21-424 MMF) each section
A4	Padder	31-6473-7	Osc. adj.
	Dial Scale	27-5966	
	Knob	76-3051	
	Pointer	56-1655-1	



DIAL CORD DRIVE

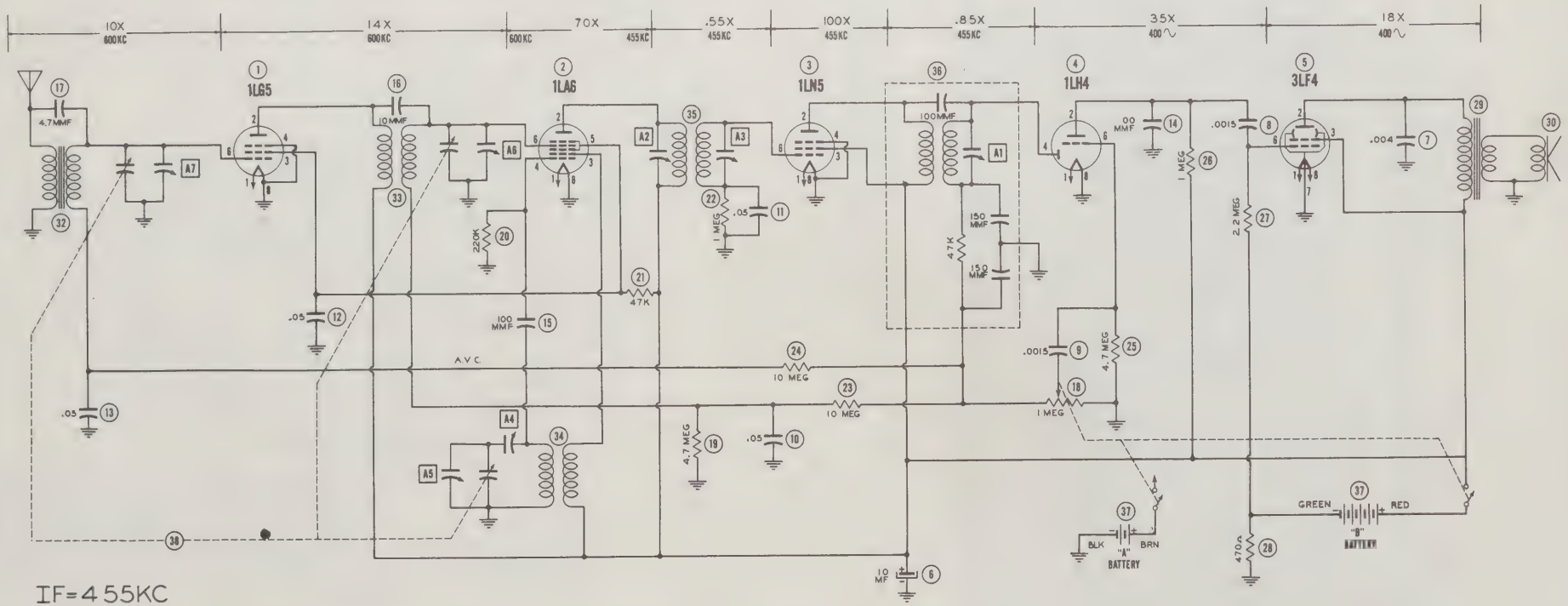
CHASSIS—BOTTOM VIEW



DATE 2/48 SET #34 FOLDER #484-16

PHILCO MODEL 48-150
BATTERY OPERATED

PHILCO MODEL 48-150
BATTERY OPERATED



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LG5	1.5VDC	85VDC	47VDC	0V.	0V.	0V.	0V.	0V.
2	1LA6	1.5VDC	85VDC	85VDC	-12VDC§	47VDC	0V.	85VDC	0V.
3	1LN5	1.5VDC	85VDC	85VDC	0V.	0V.	0V.	0V.	0V.
4	1LH4	1.5VDC	50VDC	0V.	0V.	0V.	0V.	0V.	0V.
5	3LF4	1.5VDC	80VDC	85VDC	-5.5VDC	0V.	-.7VDC	0V.	1.5VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LG5	*	100KΩ	150KΩ	0Ω	*	11 Meg.	INF.	0Ω
2	1LA6	*	100KΩ	100KΩ	220KΩ	150KΩ	3.5 Meg.	100KΩ	0Ω
3	1LN5	*	100KΩ	100KΩ	0Ω	0Ω	1 Meg.	1 Meg.	0Ω
4	1LH4	*	1.1 Meg.	3.5 Meg.	1 Meg.	1 Meg.	4.5 Meg.	11 Meg.	0Ω
5	3LF4	*	100KΩ	100KΩ	500Ω	INF.	2.5 Meg.	0Ω	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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484-16

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting high side of volume control to chassis.

1 - DC Voltage measurements are at 20,000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

PHILCO MODELS
48-460, 48-460-I

PHILCO MODELS
48-460, 48-460-I

PHILCO MODEL 48-460

TRADE NAME	Philco, Models 48-460, 48-460-I
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 14AF7 Converter, 7B7 1st IF Amp., 7B7 2nd IF Amp., 7C6 Det.-AVC-AF, 50L6GT Power Output, 35Y4 Rectifier.
POWER SUPPLY	105-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .24 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 5 (grid) 14AF7. Low side to B-.	455KC	Tuning cap. fully closed	From left hand terminal of ant. terminal strip to chassis.	A1,A2, A3,A4.	Tighten A3 firmly. Adjust A1, A2, A3,& A4 for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation. Reassemble receiver in cabinet.
2		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1500KC	Tune for maximum output.	"	A6	Adjust for maximum output.

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DATE 2/48 SET #34 FOLDER #484-17

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14AF7	14AF7	8AC	
2	1st IF Amp.	7B7	7B7	8V	
3	2nd IF Amp.	7B7	7B7	8V	
4	Det.-AVC-AF	7C6	7C6	8W	
5	Power Output	50L6GT	50L6GT	7AC	
6	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	30	150	30-2540-1	DSB-403020-150	TA-330	PRSA150-30-30	E242215	Filter - Or.
B	25	150			UT-201	PRS150-20		" - Blue
C	20	150						" - Red
8	.04	400	45-3500-2	MPH-4-05	TC-14	484-05	DT4S4	Line Filter
9	.02	400	61-0108	S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
10	.01	400	61-0120	S-4-01	TC-11	484-01	DT4S1	Audio Coupling
11	.01	400	61-0120	S-4-01	TC-11	484-01	DT4S1	" "
12	.05	400	61-0122	S-4-05	TC-15	484-05	DT4S5	AVC Filter
13	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	Screen Bypass
14	.003	600	61-0109	S-6-003	TC-23	684-003	DT6D3	Conv. Plate Decoup.
15	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	Conv. Cathode Bypass
16	.04	400	45-3500-2	S-6-04	TC-14	484-05	DT4S5	Tuning Cap. Isolation
17	.0015	600	45-3500-6	S-6-002	TC-22	684-002	DT6D2	Ext. Ant. Isolation
18	.15		76-2361			484-.15‡		Line Isolation†
19	.05		76-2362		TC-15‡	484-05‡	DT4S5‡	" " †
20	220		62-12200100[1]	M0.5-32	1FM-32	1468-0002	5W5T2	Output Grid Bypass
21	220		62-12200100[1]	M0.5-32	1FM-32	1468-0002	5W5T2	IF Coupling Neutralization*
22	3		30-1221					
23	100		50-10105407	M0.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
24	220		62-12200100[1]	M0.5-32	1FM-32	1468-0002	5W5T2	Osc. Feedback
25	470		62-14700100[1]	M0.5-35	1FM-35	1468-0005	5W5T5	RF Coupling

*Used in Code 121 only.
†Some models use special .2 MFD. @ 400V.
‡Wind same number turns on replacement as on original.

CONTROLS

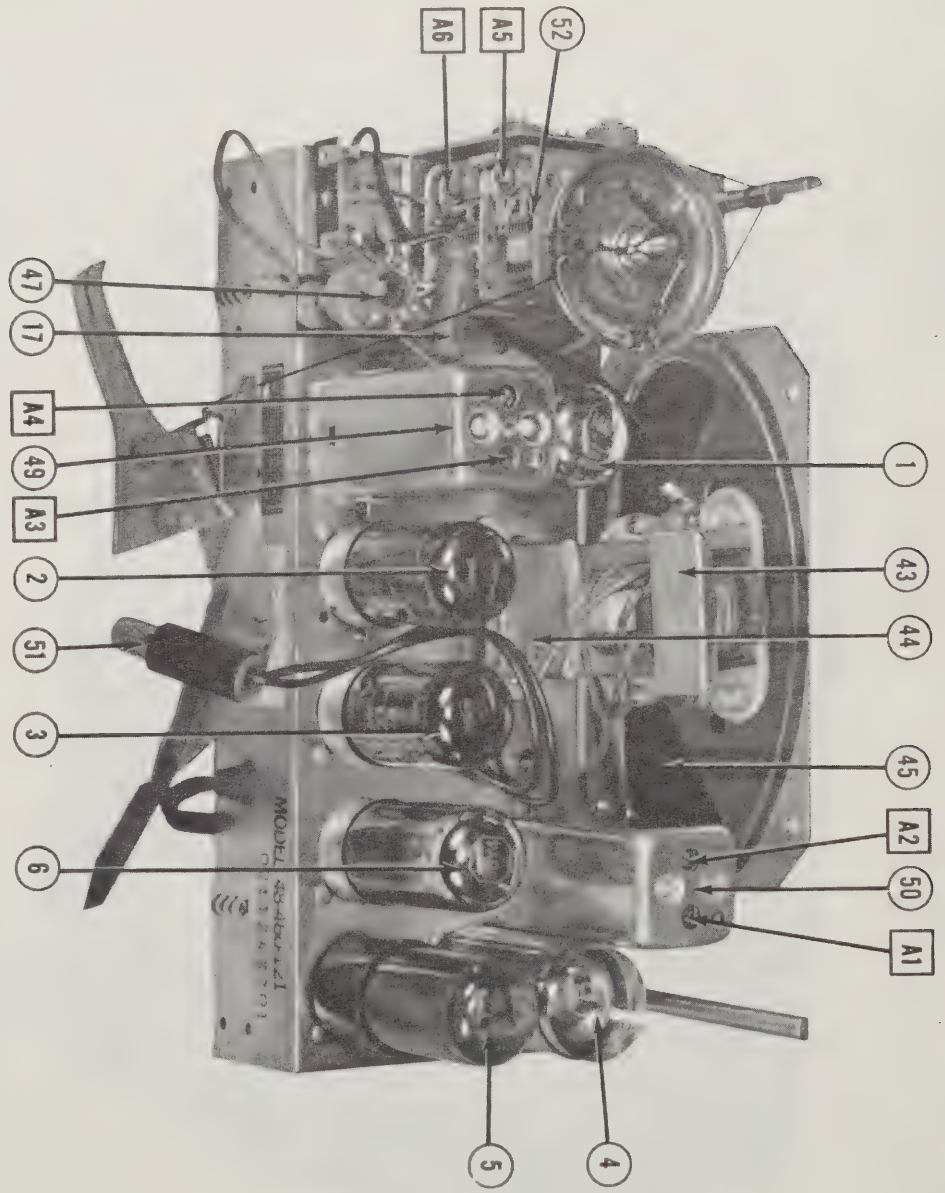
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26	500KΩ	½	33-5491			Volume Control & Sw.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES
27	47KΩ	½	66-3473340	BTS-47K	Yl.-Vl.-Or. Oscillator Grid
28	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Converter Cathode
29	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. Converter Grid
30	2200Ω	½	66-2223340	BTS-2200	Red-Red-Red Converter Plate Decoupling
31	10KΩ	½	66-3103340	BTS-10K	Br.-Blk.-Or. Oscillator Plate Load
32	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. 1st IF Plate Load
33	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. 2nd IF Grid-See Note
34	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. Screen Dropping
35	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
36	3.3 Meg.	½	66-5333340	BTS-3.3 Meg.	Or.-Or.-Grn. AF Grid
37	470KΩ	½	66-4473340	BTS-470K	Yl.-Vl.-Yl. AF Plate Load
38	470KΩ	½	66-4473340	BTS-470K	Yl.-Vl.-Yl. Output Grid
39	130Ω	½	66-1133340	BW-½-120	Br.-Or.-Br. Output Cathode
40	150KΩ	½	66-4153340	BTS-150K	Br.-Grn.-Yl. Line Isolation
41	1200Ω	½	66-2123340	BTS-1200	Br.-Red-Red Filter
42	220Ω	1	66-1224340	BW-1-220	Red-Red-Br. "

Note-Code 121 uses 470KΩ in this application. Replacement same as #37.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
43	2000Ω	3.4Ω	180Ω	.7Ω	Part of 36-1613	A-3876	T22845	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
44	PM	3.4Ω	36-1615			
	CONE DIA.	VC DIA.				
45	4"x6"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

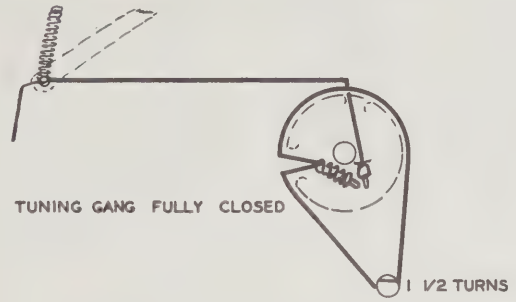
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
46	Loop Ant.		2.8Ω	32-4052-7		
47	Ant. Coil	32Ω	.8Ω	32-3394		
48	Osc. Coil		8Ω	32-4153	14-1040	
49	Input IF	2.4Ω	10.3Ω	32-4151	16-6658	
50	Output IF	23Ω		32-4152	16-6670	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
51	Bayonet	6-8	0.15	Brown	34-2068		Type 47

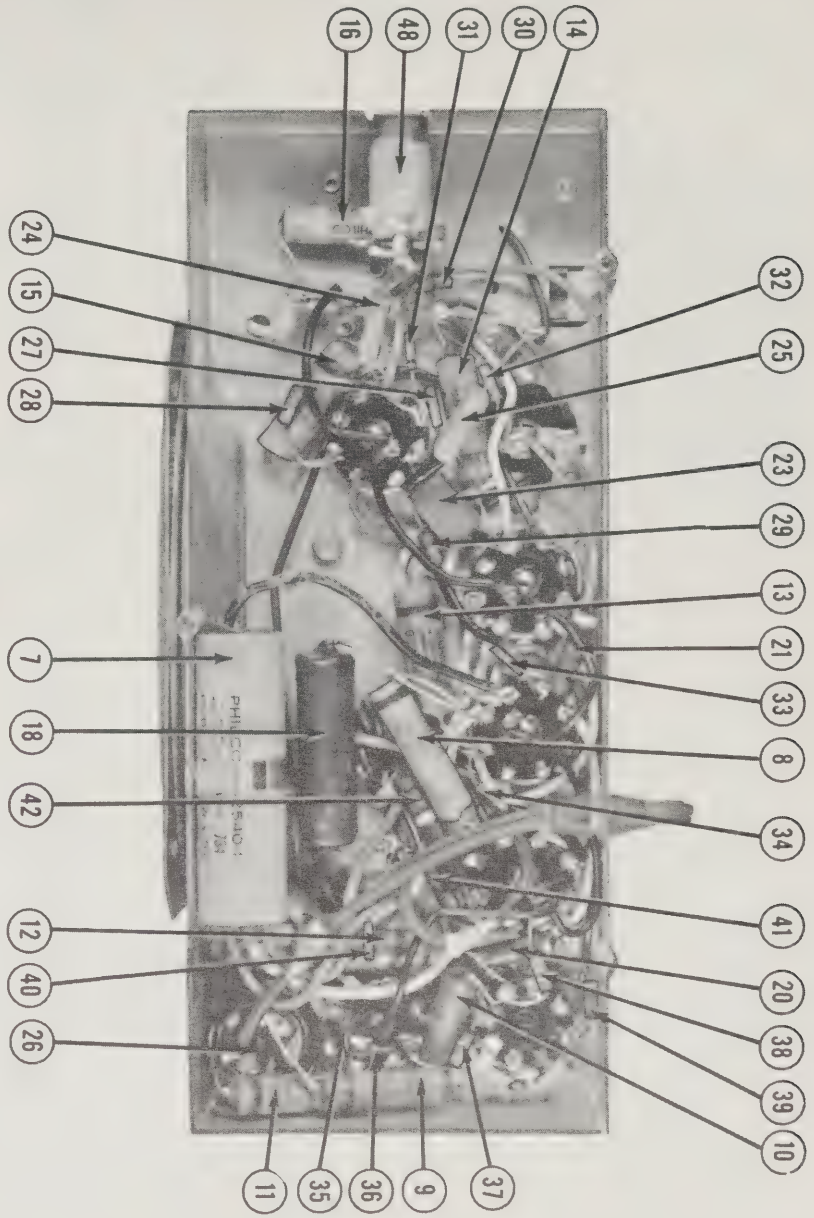
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
52	2 Gang Var. Cap	31-2636-1	(25-491 MMF, 25-173 MMF)
	Pointer	54-4253	
	Dial Scale	27-5916	
	Knob	54-4218	

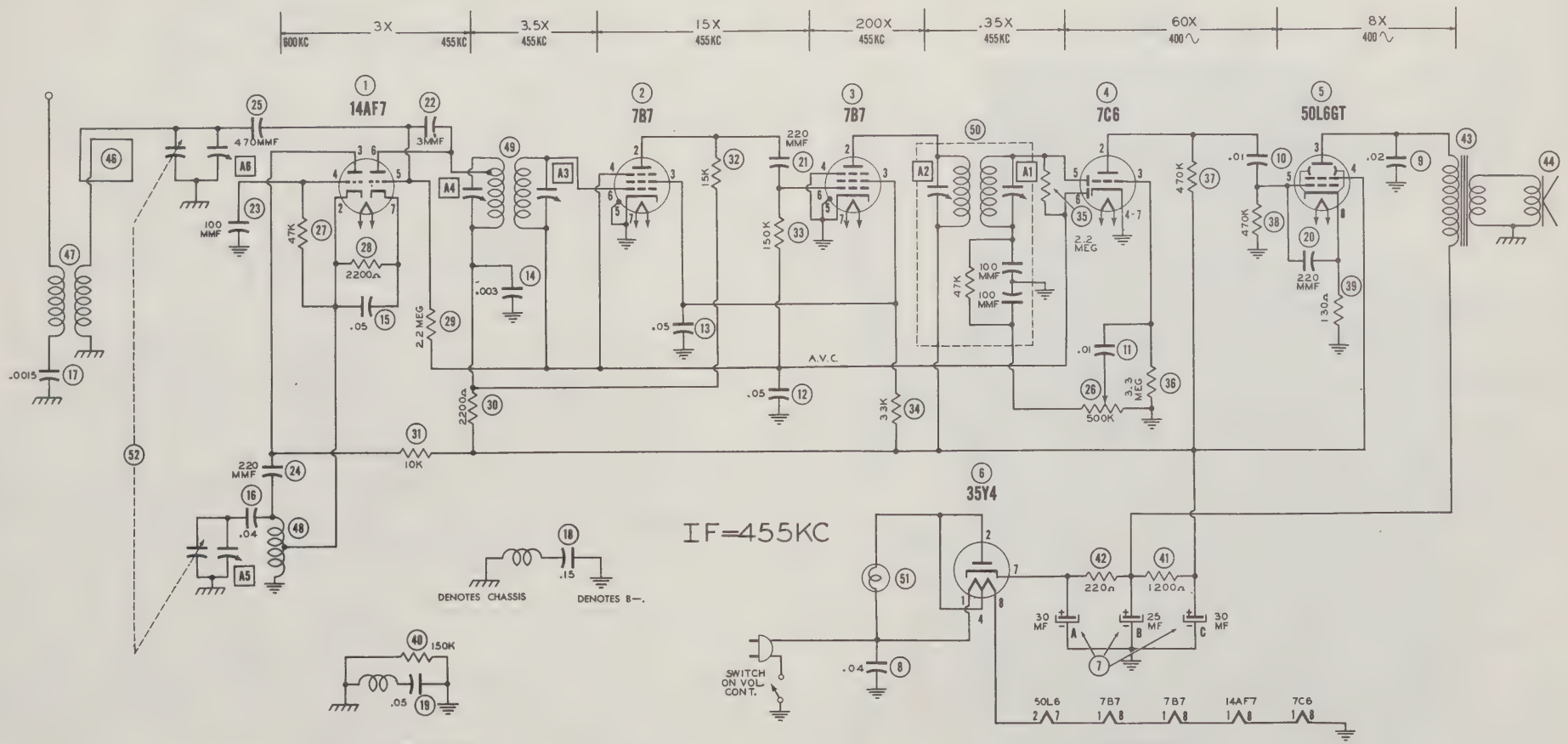


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



PHILCO MODELS 48-460, 48-460-1



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14AF7	20VAC	0V.	55VDC	-3VDC§	-.05VDC	60VDC	4VDC	7VAC
2	7B7	28VAC	32VDC	40VDC	-.6VDC	0V.	-.6VDC	0V.	20VAC
3	7B7	35VAC	92VDC	40VDC	0V.	0V.	-.3VDC	0V.	28VAC
4	7C6	7VAC	50VDC	-.6VDC	0V.	-.6VDC	-.6VDC	0V.	0V.
5	50L6	0V.	85VAC	105VDC	92VDC	0V.	0V.	35VAC	5.2VDC
6	35Y4	117VAC	114VAC	102VDC	114VAC	0V.	102VDC	125VDC	85VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14AF7	19Ω	2Ω	110KΩ	50KΩ	5 Meg.	103KΩ	2kΩ	12Ω
2	7B7	26Ω	120KΩ	135KΩ	3 Meg.	0Ω	3 Meg.	0Ω	19Ω
3	7B7	32Ω	100KΩ	135KΩ	0Ω	0Ω	3.5 Meg.	0Ω	26Ω
4	7C6	12Ω	570KΩ	3.3 Meg.	0Ω	550KΩ	3 Meg.	0Ω	0Ω
5	50L6	INF.	80Ω	100KΩ	100KΩ	480Ω	INF.	32Ω	130Ω
6	35Y4	110Ω	105Ω	100KΩ	105Ω	0Ω	100KΩ	100KΩ	80Ω

§TAKEN WITH VACUUM TUBE VOLTMETER.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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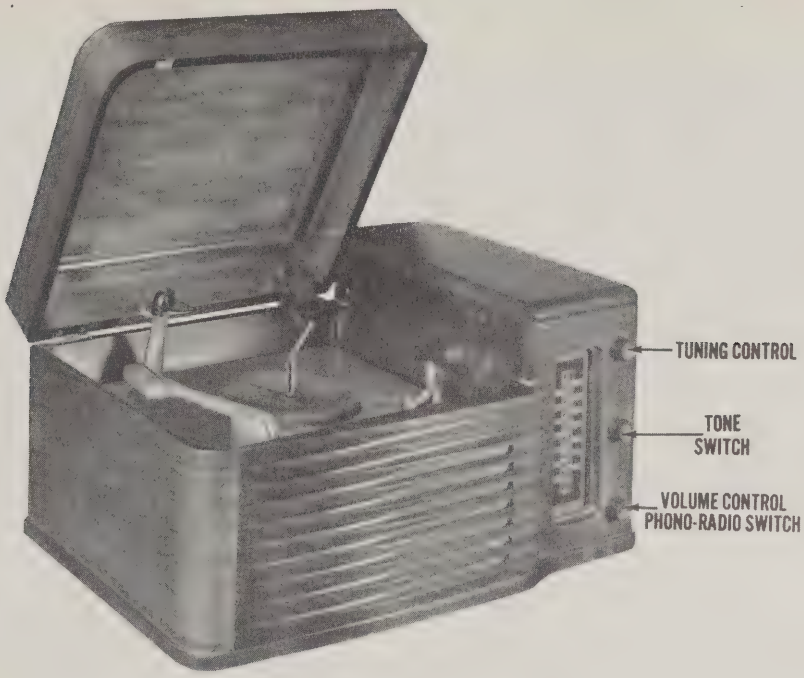
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

484-17

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. **DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.**
2. **Socket connections are shown as bottom views.**
3. **Measured values are from socket pin to common negative.**
4. **Line voltage maintained at 117 volts for voltage readings.**
5. **Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.**
6. **Volume control at maximum, no signal applied for voltage measurements.**



PHILCO MODEL 48-1256

TRADE NAME	Philco, Model 48-1256
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 7C7 RF Amp., 7A8 Converter, 14A7 IF Amp., 7C6 Det.-AVC-AF, 35L6GT Power Output, 50X6 Rectifier.
POWER SUPPLY	105-120 Volts AC
TUNING RANGE—BROADCAST	540-1620KC RATING .37 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer 1-11/16" from left edge of metal dial backplate. Use this as reference mark in Step 2 below.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 6 (grid) 7A8. Low side to B-.	455KC	Tuning cap. fully closed	Across voice coil	A1,A2, A3,A4.	Tighten A4 firmly. Adjust A1, A2, A3 and A4 for maximum output in order given.
2	200MMFD	High side to ext. ant. terminal. Low side to B-.	1600KC	4-3/8" from index mark.	"	A5	Adjust for maximum output.
3	200MMFD	"	1500KC	Tuning for maximum output.	"	A6	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type control knobs.
2. Remove four hex nuts holding loop antenna in cabinet.
3. Unsolder phono-motor leads.
4. Unsolder phono-pickup leads.
5. Unsolder leads from speaker.
6. Remove four Phillips head screws holding chassis in cabinet. Remove loop and chassis from cabinet.
7. Remove four Phillips head screws holding speaker mounting board in cabinet. Remove mounting board from cabinet. Remove four hex nuts holding speaker to mounting board.

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DATE 2/48 SET #34 FOLDER #484-18

PARTS LIST AND DESCRIPTIONS

PHILCO
MODEL 46-1206

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
1	RF Amp.	7C7	7C7	8V	
2	Converter	7A8	7A8	8U	
3	IF Amp.	14A7	14A7	8V	
4	Det.-AVC-AF	7C6	7C6	8W	
5	Power Output	35L6GT	35L6GT	7AC	
6	Rectifier	50X6	50X6		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PHILCO PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
7	15	200	30-2675-11	M-16-250	UT-162	PRS250-16	BR1625	Filter
8	15	200	30-2575-11	M-16-250	UT-162	PRS250-16	BR1625	"
9A	40	250	30-2575-12	M-40-350	UT-402	PRSA250-16-16	BR4025	" - Or.
B	10	250		M-8-250	UT-122	PRS250-20	BR1225	" - Red
10	.05	400	61-0122	MPH-+-05	TC-15	484-05	DT4S5	Line Filter
11	.03	400	45-3500-1	S-6-03	TC-13	484-03	DT4S3	Tone Comp.
12	.01	400	61-0120	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
13	.003	600	61-0109	S-6-003	TC-23	684-003	DT6D3	Audio Coupling
14	.01	400	61-0120	S-4-01	TC-11	484-01	DT4S1	" "
15	.2	400	76-1198	S-4-2	TC-2	484-.2	DT4P2	Line Isolation*
16	.05	200	61-0122	S-4-05	TC-15	484-05	DT2S5	Screen Bypass
17	.05	200	61-0122	S-4-05	TC-15	464-05	DT2S5	AVC Filter
18	.1	200	61-0113	S-2-1	TC-1	484-.1	DT2P1	Cathode Bypass
19	.0015	400	45-3500-6	S-6-002	TC-22	484-002	DT6D2	Ext. Ant. Isolation
20	.2	400	45-3500-3	S-4-2	TC-2	484-.2	DT4P2	Phono Isolation
21	.03	200	45-3500-1	S-6-03	TC-13	484-03	DT4S3	" "
22	240	500	60-10245307	MO.5-325	1FM-325	1468-00025	5W5T25	Output Grid Bypass
23	100	500	60-10105407	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
24	47	500	60-10255237	MO.5-45	1FM-45	1468-00005	5W5S5	Osc. Grid Cap.
25	10	500	60-01009001	MOS.5-41	MS-31	1469-00001	5W5Q1	Fixed Trimmer
26	100	500	60-10105407	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling
27	5	500		MOS.5-55	MS-55	1469-000005	5W5V5	Fixed Trimmer

*Wind same number turns on replacement as on original.

CONTROLS

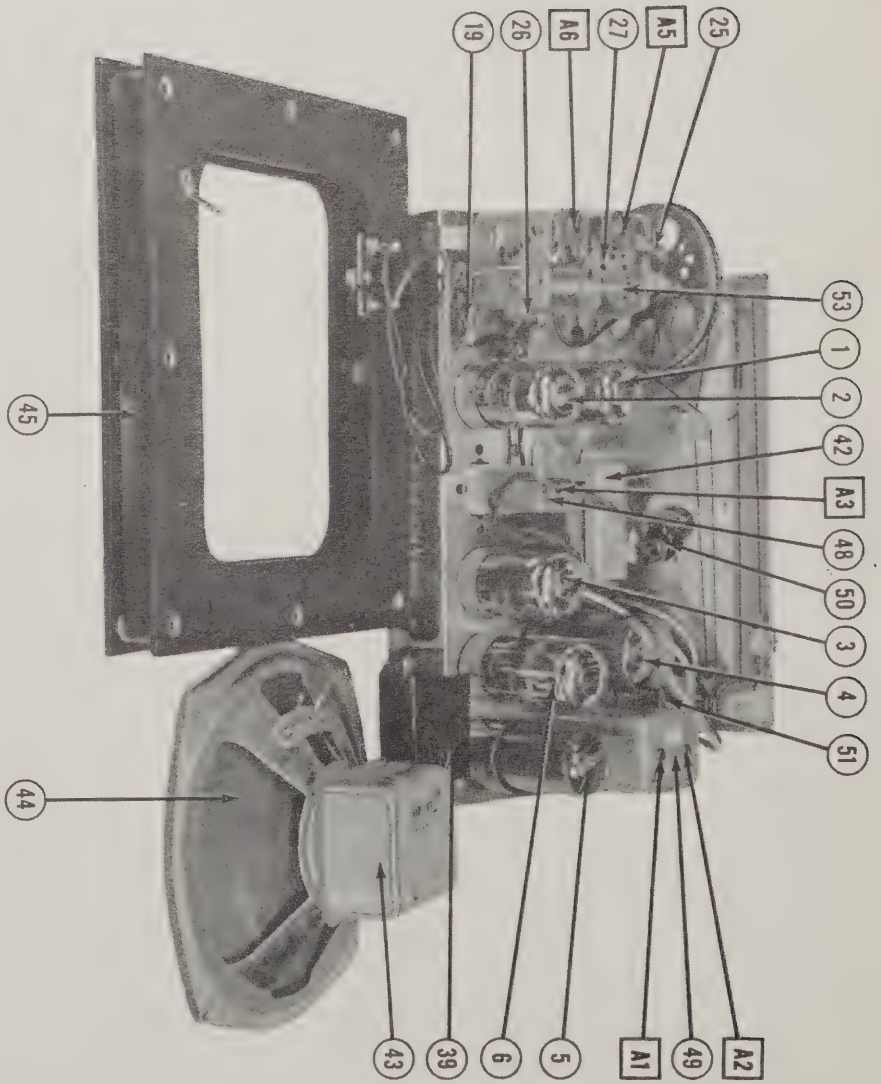
ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	
28	1 Meg.Ω	½	33-5503			Volume Control & Sw.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
29	1 Meg.	½	66-5103340	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
30	6800Ω	½	66-2683340	BTS-6800	Blue-Gray-Red RF Coil Shunt
31	180Ω	½	66-1183340	BW-½-180	Br.-Gray-Br. RF-Converter Cathode
32	120KΩ	½	66-4123340	BTS-120K	Br.-Red-Yl. Oscillator Grid
33	33KΩ	½	66-3333340	BTS-33K	Or.-Or.-Or. RF-IF Screen Dropping
34	2.2 Meg.	½	66-5223340	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
35	10 Meg.	½	66-6103340	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
36	220KΩ	½	66-4223340	BTS-220K	Red-Red-Yl. AF Plate Load
37	470KΩ	½	66-4473340	BTS-470K	Yl.-Vi.-Yl. Output Grid
38	180Ω	½	66-1183340	BW-½-180	Br.-Gray-Br. Output Cathode
39	500Ω		33-3435-3	AB-500	Filter
40	8200Ω	1	66-2824340	BTA-8200	Gray-Red-Red "
41	120KΩ	½	66-4123340	BTS-120K	Br.-Red-Yl. Line Isolation
54	15KΩ	½	66-3153340	BTS-15K	Br.-Grn.-Or. RF Coil Shunt-See Note

Note - Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
42	4000Ω	3.8Ω	450Ω	.5Ω	32-8242		T22S87		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
43	FIELD	VC IMP.	36-1613	ST-110 Mod. P6-V	6A21	
	PM	3.8Ω				
	CONE DIA.	VC DIA.				
44	6"	3/4"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

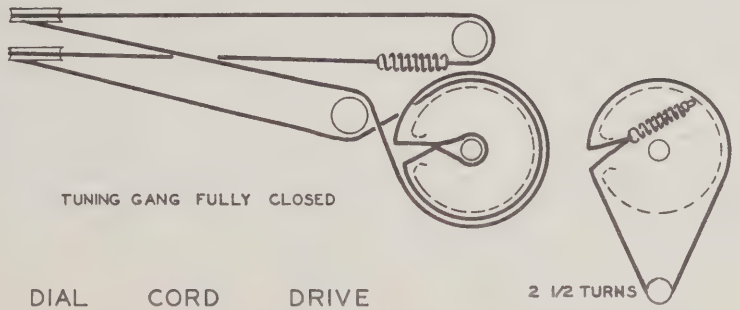
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	
45	Loop Ant.	.2Ω	2Ω	76-3020		
46	Rf Coil	30Ω	2Ω.5Ω	32-3595		
47	Osc. Coil	3.8Ω	9Ω	32-4190*	14-1040	*Includes Items #30 & #54.
48	Input IF	12Ω	12Ω	32-4160	16-6668	
49	Output IF	21Ω		32-4005	16-6670	

DIAL LIGHT

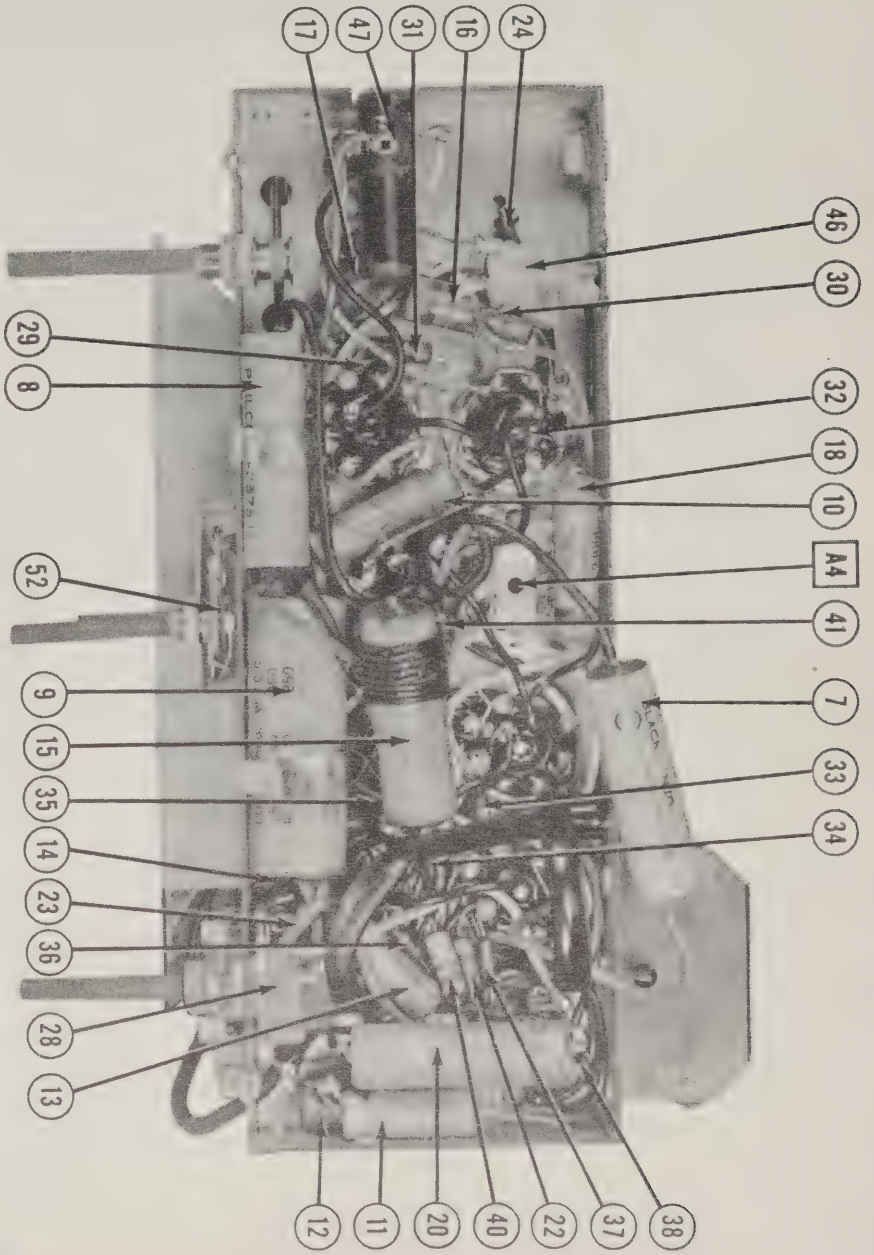
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					PHILCO PART No.		
50	Screw	115-125			34-2477		Type C7

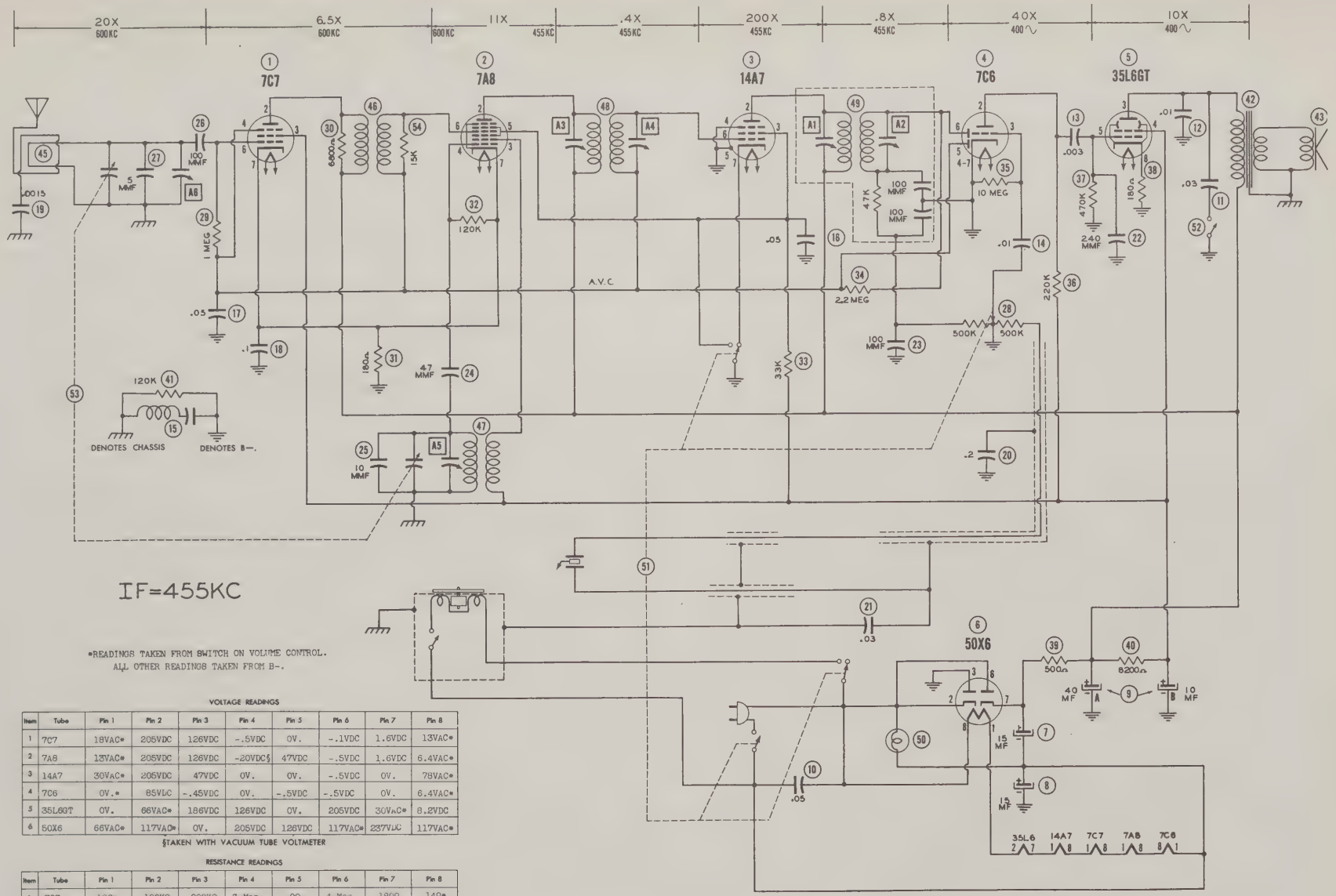
MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
51	Switch	42-1736	Radio-Phono
52	"	42-1770	Tone
53	2 Gang Var. Cap.	31-2527-2	(18-496MMF, 20-175 MMF)
	Dial Scale	27-5890	
	Knob	54-4488	
	Dial Pointer	56-3185	



CHASSIS—BOTTOM VIEW





*READINGS TAKEN FROM SWITCH ON VOLUME CONTROL.
ALL OTHER READINGS TAKEN FROM B-.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	18VAC*	205VDC	126VDC	-.5VDC	0V.	-.1VDC	1.6VDC	13VAC*
2	7A8	13VAC*	205VDC	126VDC	-20VDC§	47VDC	-.5VDC	1.6VDC	6.4VAC*
3	14A7	30VAC*	205VDC	47VDC	0V.	0V.	-.5VDC	0V.	78VAC*
4	7C6	0V.*	85VDC	-.45VDC	0V.	-.5VDC	-.5VDC	0V.	6.4VAC*
5	35L6GT	0V.	66VAC*	186VDC	126VDC	0V.	205VDC	30VAC*	8.2VDC
6	50X6	66VAC*	117VAC*	0V.	205VDC	126VDC	117VAC*	237VDC	117VAC*

§TAKEN WITH VACUUM TUBE VOLTMETER

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	7C7	19Ω*	190KΩ	200KΩ	3 Meg.	0Ω	4 Meg.	180Ω	14Ω*
2	7A8	14Ω*	190KΩ	200KΩ	110KΩ	250KΩ	3 Meg.	190Ω	7Ω*
3	14A7	30Ω*	190KΩ	250KΩ	0Ω	0Ω	3 Meg.	0Ω	19Ω*
4	7C6	0Ω*	420KΩ	10 Meg.	0Ω	3 Meg.	550KΩ	0Ω	7Ω*
5	35L6GT	0Ω	56Ω*	190KΩ	200KΩ	470KΩ	190KΩ	30Ω*	180Ω
6	50X6	56Ω*	872*	0Ω	190KΩ	200KΩ	872*	190KΩ	872*

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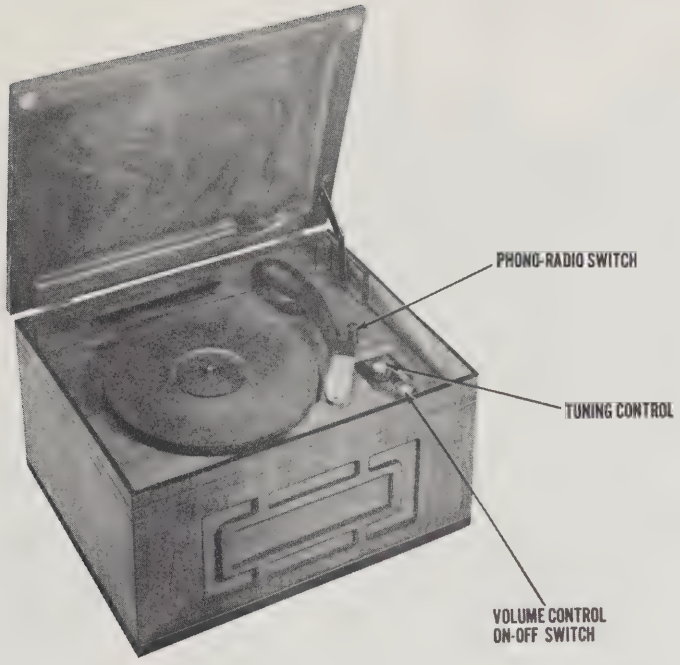
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

484-18

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SILVERTONE MODEL
8072 (Ch.101.834)



SILVERTONE MODEL 8072

TRADE NAME	Silvertone, Model 8072 (Ch. 101.834)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan St., Chicago, Ill.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 14Q7 Converter, 14A7 IF Amp., 7C6 Det.-AVC-AF, 50A5 Power Output, 35Y4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	540-1650KC RATING .24 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully closed.	Across voice coil	A1,A2, A3	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2	200MMFD	High side to ext. ant. terminal. Low side to chassis.	1650KC	Tuning cap. fully open.	"	A4	Adjust for maximum output.
3	200MMFD	"	1410KC	Tune for maximum output.	"	A5	" " " "

DISASSEMBLY INSTRUCTIONS

1. Remove two push-on type control knobs.
2. Remove leads from loop antenna.
3. Remove phono-motor plug from chassis.
4. Remove phono-pickup plug from chassis.
5. Remove six wood screws holding loop antenna to back of cabinet. Remove loop from cabinet.
6. Remove four wood screws holding speaker in cabinet. Remove speaker from cabinet.
7. Remove three screws holding chassis in cabinet. Remove chassis from cabinet.

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DATE 2/48 SET #34 FOLDER #484-19

PARTS LIST AND DESCRIPTIONS

SILVERTONE MODEL 8072
(Ch. 101.834)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	14Q7	14Q7	8AL	
2	IF Amp.	14A7	14A7	8V	
3	Det.-AVC-AF	7C6	7C6	8W	
4	Power Output	50A5	50A5	6AA	
5	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	R61683	DSB-303	TA-240		EZ4215C	Filter - Red
B	20	150			"			" - Blue
C	20	25			TA-25			Cathode Bypass-Grn.
7	.05	600		MPH-6-05	TC-15	684-05	DT6S5	Line Filter
8	.02	400		S-4-02	TC-12	484-02	DT4S2	Output Plate Bypass
9	.005	400		S-6-005	TC-25	464-005	DT6D5	Output Plate Bypass
10	.002	600		S-6-002	TC-22	684-002	DT6D2	Audio Coupling
11	.01	400		S-4-01	TC-11	484-01	DT4S1	" "
12	.1	400		S-4-1	TC-1	484-.1	DT4P1	Line Isolation
13	.05	200		S-4-05	TC-15	484-05	DT2S5	AVC Filter
14	.05	200		S-4-05	TC-15	484-05	DT2S5	RF Bypass Power Supply
15	.05	600		S-6-05	TC-15	684-05	DT6S5	Phono Isolation
16	.05	200		S-4-05	TC-15	484-05	DT2S5	Tuning Cap. Isolation
17	250	500		MO.5-325	1FH-325	1468-00025	5W5T25	AF Plate Bypass

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
18A	500KΩ	½	R61684	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 18A per instructions
C	Switch		" "	41	SW-A	" " " " "

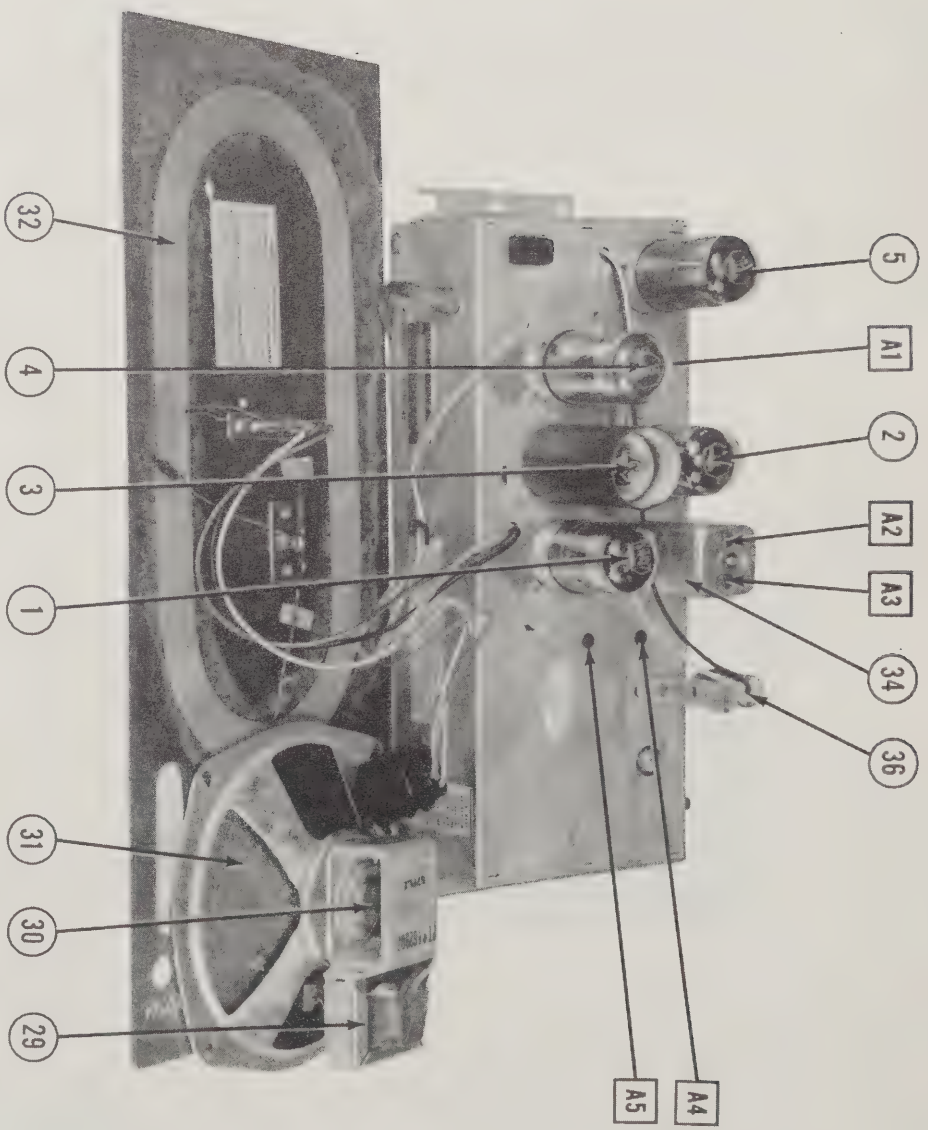
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	IDENTIFICATION CODES
19	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
20	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
21	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. Series Phono
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Diode RF Filter
23	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
24	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AF Plate Load
25	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
26	100Ω	½		BW-½-100	Br.-Blk.-Br. Output Cathode
27	1200Ω	1		BTA-1200	Br.-Red-Red Filter
28	25Ω	1		BW-1-27	Red-Grn.-Blk. Surge Limiter

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
29	2000Ω	3.9Ω	250Ω tapped @ 13Ω	.7Ω	R62911	A-3876*		A-2928*	*Bend mounting tabs down, file out slots and mount on original bracket. Add extra filter to reduce hum level.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-107†		
30	PM	3.9Ω	R62907	Mod. P5-V	52A1	†Use adaptor baffle.
	CONE DIA.	VC DIA.				
31	5-1/8"	1/2"	R62910			

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	MEISSNER PART No.
32	Loop Ant.	.1Ω	1.8Ω	R62904	
33	Osc. Coil		12Ω	R61697	14-1040
34	Input IF	24Ω	21Ω	R61688	16-6666
35	Output IF	19Ω	19.5Ω	R61689	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: SILVERTONE PART No.		INSTALLATION NOTES
36	Bayonet	6-8	0.15	Brown			Type 47

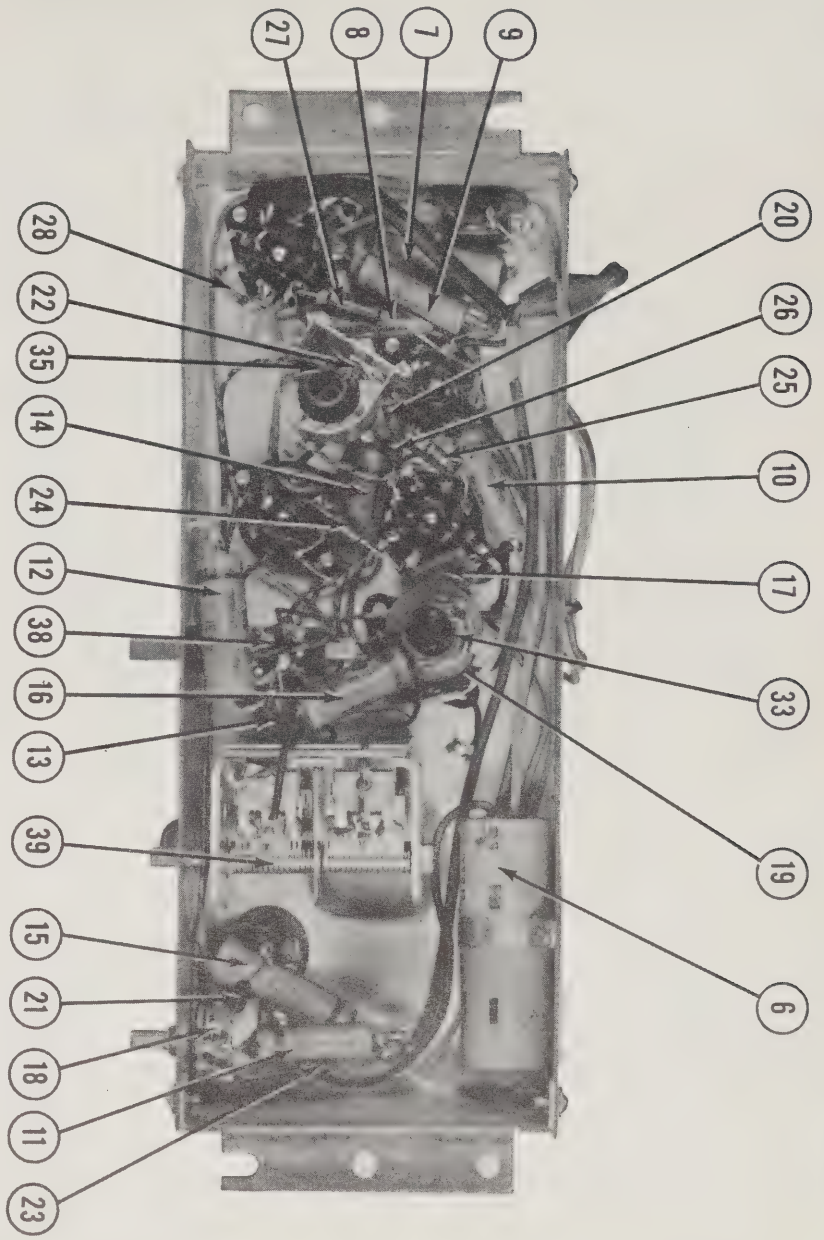
PHONO ARM AND CARTRIDGE

ITEM No.	REPLACEMENT DATA: SILVERTONE PART No.	ASTATIC PART No.	REMARKS
37A	R57433		Arm
B	R52826	L-70-A	Crystal L-70 original part.

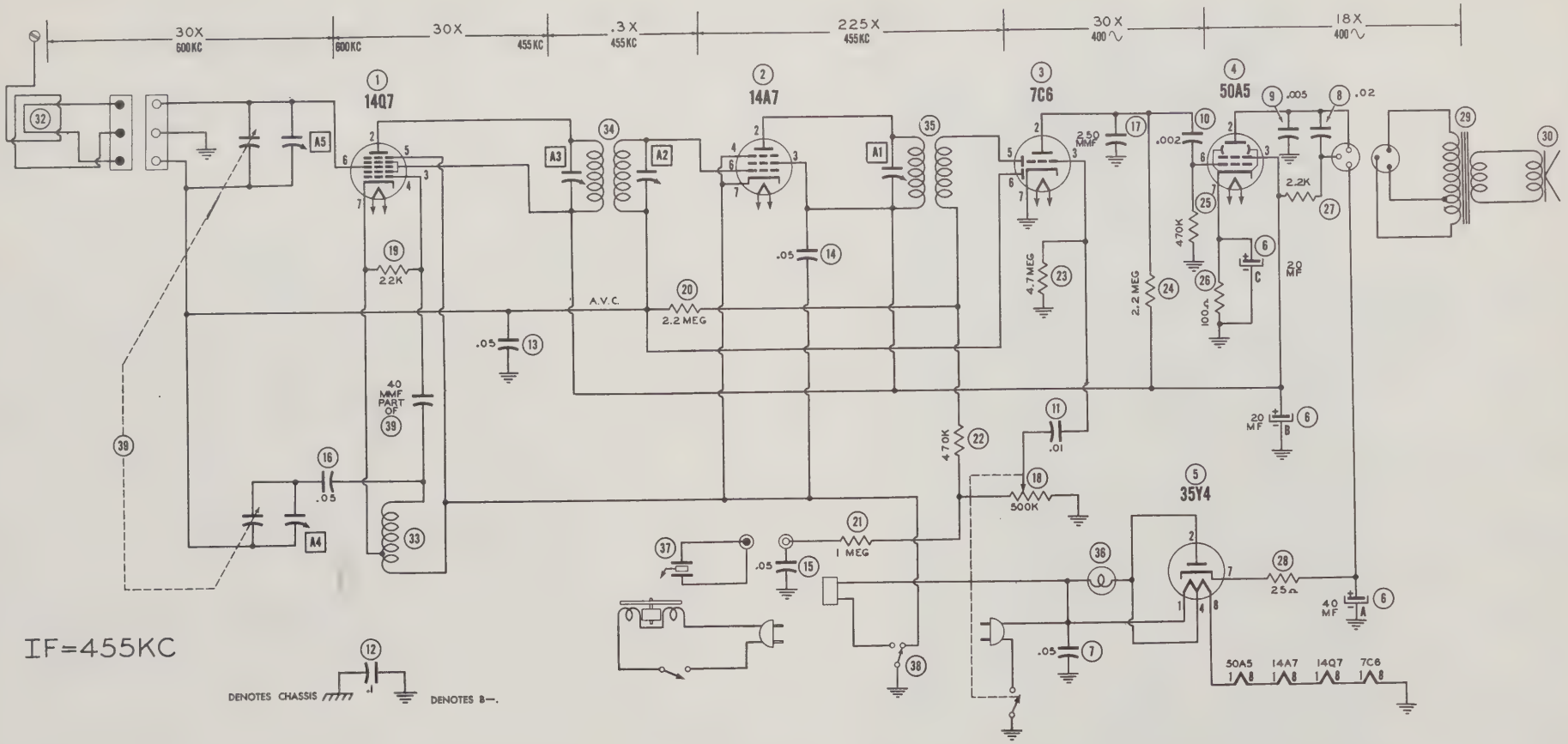
MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
38	Switch	R61687	Radio-Phono
39	2 Gang Var. Cap.	R61681	(17-465MMF, 20-148MMF)
A1	Trimmer	R62282	Output IF Adj.
	Dial	R62900	
	Knob	R62524	Tuning
	"	R62525	On-Off-Volume

CHASSIS—BOTTOM VIEW



SILVERTONE MODEL 8072 (Ch. 101.834)



VOLTAGE READINGS

RADIO-PHONO SWITCH IN RADIO POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	20VAC	77VDC	77VDC	-9VDC§	0V.	-.5VDC	0V.	6.7VAC
2	14A7	34.5VAC	77VDC	77VDC	0V.	0V.	-.5VDC	0V.	20VAC
3	7C6	6.7VAC	26VDC	-.6VDC	0V.	-.5VDC	-.5VDC	0V.	0V.
4	50A5	85VAC	112VDC	77VDC	120VDC	4.4VDC	0V.	4.4VDC	34.5VAC
5	35Y4	117VAC	113VAC	0V.	113VAC	120VDC	120VDC	122VDC	85VAC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	14Q7	19Ω	200KΩ	200KΩ	22KΩ	0Ω	3.5 Meg.	1Ω	8Ω
2	14A7	31Ω	200KΩ	200KΩ	0Ω	0Ω	3.5 Meg.	0Ω	19Ω
3	7C6	8Ω	2.4 Meg.	5 Meg.	0Ω	1 Meg.	3.5 Meg.	0Ω	0Ω
4	50A5	78Ω	200KΩ	200KΩ	200KΩ	100Ω	500KΩ	100Ω	31Ω
5	35Y4	120Ω	99Ω	0Ω	99Ω	200KΩ	200KΩ	200KΩ	78Ω

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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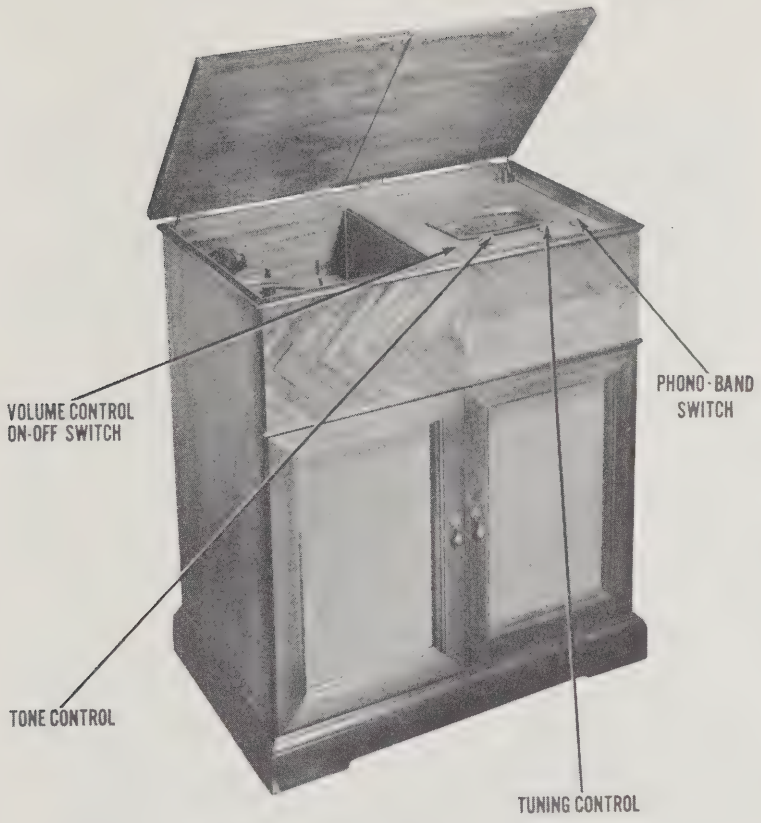
484-19

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

SONORA
MODEL WKRU-254A



SONORA
MODEL WKRU-254A

SONORA MODEL WKRU-254A

TRADE NAME	Sonora, Model WKRU-254A
MANUFACTURER	Sonora Radio & Tele. Corp., 325 N. Hoyne Ave., Chicago, Ill.
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Ant.
TUBES (EIGHT)	Types, 6BA6 RF Amp., 6BE6 Converter, 6BA6 IF Amp., 6BA6 IF Amp., 6AL5 Ratio Det., 6SQ7 AM Det.-AVC-AF, 25L6GT Power Output, 25Z6GT Rectifier.
POWER SUPPLY	110-120 Volts AC — RATING .41 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC — FREQ. MOD. 87-109MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial.
Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.
Use insulated alignment screwdriver for all adjustments.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.05 MFD.	High side to Pin 7 (grid) 6BE6. Low side to B-.	455KC	Center Position	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation. Always use peak obtained when slug is turned out the greatest distance.
2	100MMFD	High side to ext. ant. lead. Low side to B-.	1620KC	"	"	"	A5	Adjust for maximum output
3	100MMFD	"	1400KC	"	Tune for maximum output.	"	A6	Adjust for maximum output. Check calibration and sensitivity at 600KC.

FOR FM ALIGNMENT SEE LAST PAGE OF THIS FOLDER.

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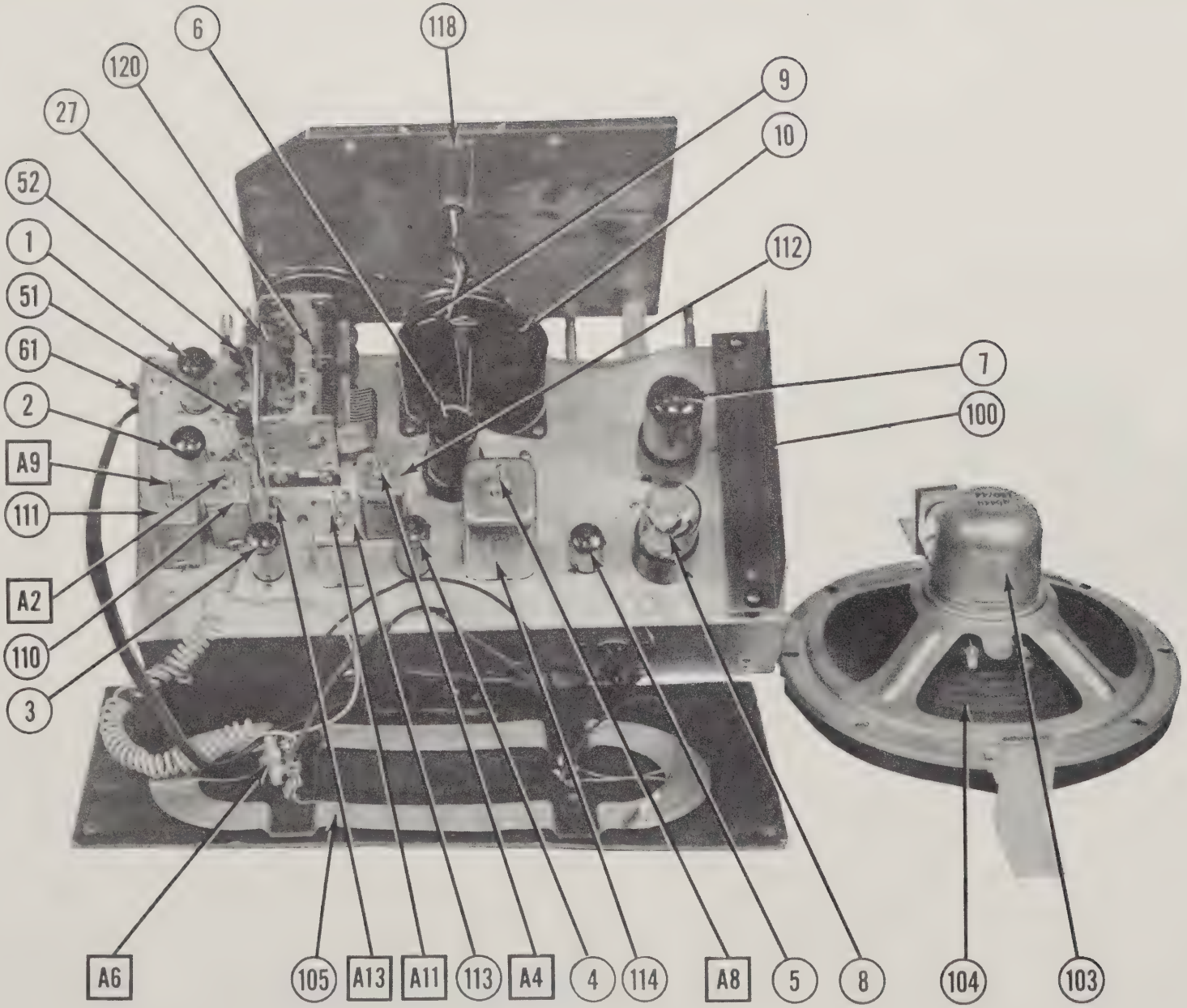
DATE 2/48 SET #34 FOLDER #484-20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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SONORA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6BA6	6BA6	7BK	
2	Converter	6BE6	6BE6	7CH	
3	IF Amp.	6BA6	6BA6	7BK	
4	IF Amp.	6BA6	6BA6	7BK	
5	Ratio Det.	6AL5	6AL5	6BT	
6	AM Det.-AVC-AF	6SQ7	6SQ7	8Q	
7	Power Output	25L6GT	25L6GT	7AC	
8	Rectifier	25Z6GT	25Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SONORA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9	80	150	N-6212	DY-80-150	EL-35*	AF88D*	UP-8015	Filter
10A	50	150	N-6313	DY-419	EL-452	AF101010D4A	UP-555150	Filter
B	50	150						"
C	50	150						"
D	20	25						Cathode Bypass
11	6	150	N-6374	M-4-450	TA-55	PRS150-4	BR550	Stabilizing Cap.
12	.05	400	N-1346	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
13	.01	400	N-1344	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
14	.01	400	N-1344	S-4-05	TC-11	484-01	DT4S1	Audio Coupling
15	.005	600	N-4894	S-6-005	TC-25	684-005	DT6D5	Tone Comp.
16	.01	400	N-1344	S-4-01	TC-11	484-01	DT4S1	" "
17	.1	200	N-1361	S-2-1	TC-1	484-.1	DT4P1	AF Plate Decoupling
18	.1	200	N-1361	S-2-1	TC-1	484-.1	DT4P1	RF Bypass Power Supply
19	.005	600	N-4894	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
20	.002	600	N-6377	S-6-002	TC-22	684-002	DT6D2	De-emphasis
21	.02	400	N-1376	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
22	.05	200	N-1345	S-4-05	TC-15	484-05	DT4S5	AVC Filter
23	.1	200	N-1361	S-2-1	TC-1	484-.1	DT4P1	Line Isolation
24	.01	400	N-1344	S-4-01	TC-11	484-01	DT4S1	Ext. Ant. Isolation
25	.09	200	N-4957	S-2-1	TC-1	484-.1	DT4P1	Phono Isolation
26	.05	200	N-1345	S-4-05	TC-15	484-05	DT4S5	AVC Filter
27	.05	200	N-1345	S-4-05	TC-15	484-05	DT4S5	Tuning Cap. Isolation
28	250	500	N-6488	MO.5-325	1FM-325	1468-00025	5W5T25	AF Plate Bypass
29	250	500	N-6488	MO.5-325	1FM-325	1468-00025	5W5T25	RF Bypass
30	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	" "
31	10000		N-6482	MW.3-11	1FM-11	1467-01	1D3S1	" "
32	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	Filament Bypass
33	250	500	N-6488	MO.5-325	1FM-325	1468-00025	5W5T25	Diode Load Cap.
34	130	500	N-6487	MO.5-315	1FM-315	1468-00015	5W5T15	" " "
35	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	Driver Decoupling
36	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	Driver Cathode Bypass
37	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	AVC Filter
38	50	500	N-6375	MO.5-45	1FM-45	1468-00005	5W5Q5	Diode RF Filter
39	50	500	N-6375	MO.5-45	1FM-45	1468-00005	5W5Q5	Diode RF Filter
40	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	RF Bypass
41	10000		N-6482	MW.3-11	1FM-11	1467-01	1W3S1	" "
42	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	1st IF Decoupling
43	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	1st IF Cathode Bypass
44	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	AVC Filter
45	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	Conv. Plate Decoup.
46	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	Conv. Screen Bypass
47	5	500			MS-55		5W5V5	Feedback
48	50	500	N-6375	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap.
49	250	500	N-6488	MO.5-325	1FM-325	1468-00025	5W5T25	Filament Bypass
50	4.5	500	N-6463					Fixed Trimmer‡
51	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	RF Bypass
52	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	" "
53	100	500	N-6015	MO.5-31	1FM-31	1468-0001	5W5T1	PF Coupling
54	75	500	N-6484			1469-000075		Fixed Pad
55	50	500	N-6375	MO.5-45	1FM-45	1468-00005	5W5Q5	RF Coupling
56	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	RF Screen Bypass
57	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	RF Cathode Bypass
58	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	Filament Bypass
59	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	AVC Filter

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SONORA PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
60	250	500	N-6488	MO.5-325	1FM-325	1468-00025	5W5T25	RF Bypass
61	20	500	N-6584	MOS.5-425	MS-42	1469-000025	5W5Q2	FM Ant. Shunt
62	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	RF Bypass Power Supply
63	100	500	N-6015	MO.5-31	1FM-31	1468-0001	5W5T1	Tone Comp.
64	5000		N-6272	MW.5-25	1FM-25	1467-005	1D5D5	Filament Bypass

*Parallel sections to obtain desired capacity.
‡Not used in some models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SONORA PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
65A	500KΩ	½	N-6274	D13-133X	AT-78	Volume Control tapped @ 100KΩ
B	Shaft		Not Req.	A	KSS-3	Attach to 65A per instructions
C	Switch		" "	41	SW-A	" " " " "
66A	500KΩ	½	N-6273			Tone Control
B	Shaft		Not Req.			Attach to 66A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SONORA PART No.	IRC PART No.	IDENTIFICATION CODES
67	220KΩ	½	N-4026	BTS-220K	Red-Red-Yl. AVC Network
68	2.2 Meg.	½	N-4277	BTS-2.2 Meg.	Red-Red-Grn. RF Grid
69	68Ω	½	N-6485	BW-½-68	Blue-Gray-Blk. RF Cathode
70	1 Meg.	½	N-1262	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
71	1 Meg.	½	N-1262	BTS-1 Meg.	Br.-Blk.-Grn. Series Phono
72	12Ω	½	N-5053	BW-½-12	Br.-Red-Blk. Parasitic Suppressor
73	2200Ω	½	N-4296	BTS-2200	Red-Red-Red RF Screen Dropping
74	820Ω	½	N-4279	BTS-820	Gray-Red-Br. RF Plate Load
75	10KΩ	½	N-4695	BTS-10K	Br.-Blk.-Or. Converter Grid
76	22KΩ	½	N-4025	BTS-22K	Red-Red-Or. Oscillator Grid
77	1000Ω	½	N-1624	BTS-1000	Br.-Blk.-Red Converter Screen Decoupling
78	1000Ω	½	N-1624	BTS-1000	Br.-Blk.-Red Converter Plate Decoupling
79	68Ω	½	N-6485	BW-½-68	Blue-Gray-Blk. 1st IF Cathode
80	470Ω	½	N-6011	BTS-470	Yl.-Vi.-Br. 1st IF Decoupling
81	220KΩ	½	N-4026	BTS-220K	Red-Red-Yl. AVC Network
82	47KΩ	½	N-4063	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
83	68Ω	½	N-6485	BW-½-68	Blue-Gray-Blk. 2nd IF Cathode
84	470Ω	½	N-6011	BTS-470	Yl.-Vi.-Br. 2nd IF Decoupling
85	68Ω	½	N-6485	BW-½-68	Blue-Gray-Blk. Balancing Resistor
86	33KΩ	½	N-4064	BTS-33K	Or.-Or.-Or. De-emphasis
87	100KΩ	½	N-2973	BTS-100K	Br.-Blk.-Yl. AVC Network
88	33KΩ	½	N-6378	BTS-33K	Or.-Or.-Or. Ratio Detector Load
89	27KΩ	½	N-4451	BTS-27K	Red-Vi.-Or. Tone Compensation
90	1.8 Meg.	½	N-6486	BTS-1.8 Meg.	Br.-Gray-Grn. AVC Network
91	6.8 Meg.	½	N-4028	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
92	220KΩ	½	N-4026	BTS-220K	Red-Red-Yl. AF Plate Load
93	68KΩ	½	N-5693	BTS-68K	Blue-Gray-Or. AF Plate Decoupling
94	470KΩ	½	N-4027	BTS-470K	Yl.-Vi.-Yl. Output Grid
95	150Ω	½	N-3665	BW-½-150	Br.-Grn.-Br. Output Cathode
96	68Ω	1	N-2379	BW-1-68	Blue-Gray-Blk. Filter
97	150Ω	½	N-3665	BW-½-150	Br.-Grn.-Br. "
98	100Ω	½	N-1615	BW-½-100	Br.-Blk.-Br. "
99	12Ω	½	N-5053	BW-½-12	Br.-Red-Blk. Surge Limiter
100A	100Ω	7.7	N-6362	AB-100	Pilot Light Shunt
B	60Ω	6		AB-75	Line Dropping-See Note 1
101	Special		N-6311		Series Pilot Light-See Note 2

Note 1 - On IRC replacement set slider at 60Ω from one end.
Note 2 - This is a special regulating resistor.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA SONORA PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA THORDAR'N PART No.	REPLACEMENT DATA MERIT PART No.	INSTALLATION NOTES
102	2500Ω	3.8Ω	230Ω tapped @ 3Ω	.6Ω	N-6369	A-3876#†		A-2902#	#Add extra filter to reduce hum level. †Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA SONORA PART No.	REPLACEMENT DATA JENSEN PART No.	REPLACEMENT DATA QUAM PART No.	INSTALLATION NOTES
103	FIELD PM	VC IMP. 3.8Ω	N-6449	ST-117 Mod. P8-T	8A31	
104	CONE DIA. 7-3/8"	VC DIA. 11/16"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

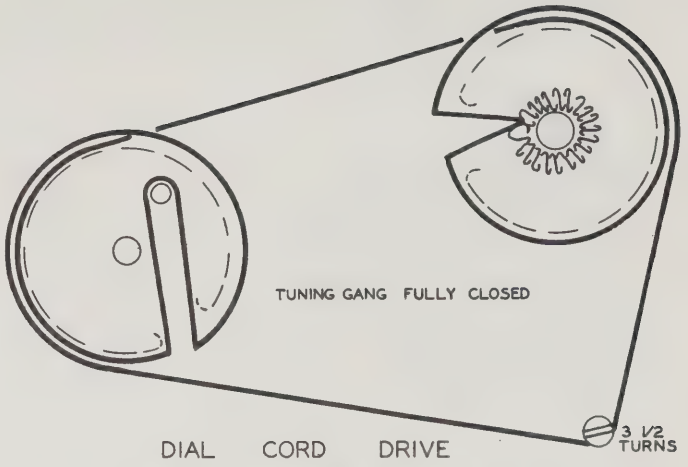
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SONORA PART No.	REPLACEMENT DATA MEISSNER PART No.	
105	Loop Ant.		1.5Ω	N-6431		
106	FM Ant.Coil	0Ω	0Ω	N-6371		
107	FM RF Coil		0Ω	N-6372		
108	AM Osc.Coil	2Ω	5Ω	N-6348	14-1040	
109	FM Osc.Coil		0Ω	N-6349		
110	Input IF AM	10Ω	10.5Ω	N-6344	16-6668	
111	" " FM	1.5Ω	.1Ω	N-6346		
112	Output IF AM	10.5Ω	10.5Ω	N-6345	16-6669	
113	" " FM	1.5Ω	.1Ω	N-6346		
114	Disc. Trans.	2.5Ω	.1Ω	N-6341		Tapped .05Ω on sec.
115	Plate Choke		3.5Ω	N-6373		
116	Fil. Choke	5.4Ω	5.1Ω	N-6380		
117	RF Choke		0Ω			

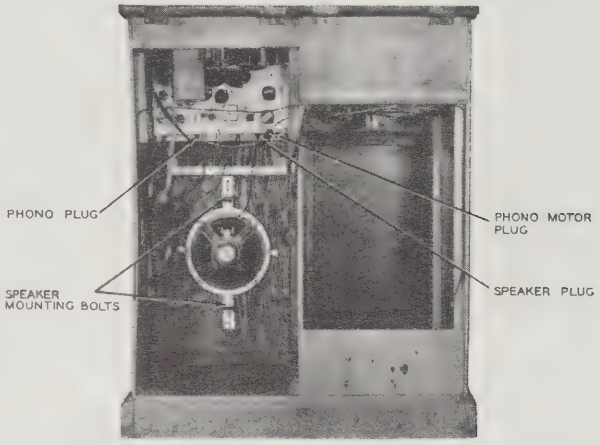
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA SONORA PART No.	REPLACEMENT DATA	INSTALLATION NOTES
118	Bayonet	6-8	0.15	Brown	N-1147		Type 47

MISCELLANEOUS

ITEM No.	PART NAME	SONORA PART No.	NOTES
119	Switch	N-6450	Phono-Band
120	2 Gang Var. Cap.	N-6276	(12-528MMF, 10-185MMF)
A5	Trimmer	N-6407	AM Osc. Adj.
A6	"	N-6406	AM Ant. Adj.
A13	"	N-6420	FM Osc. Adj.

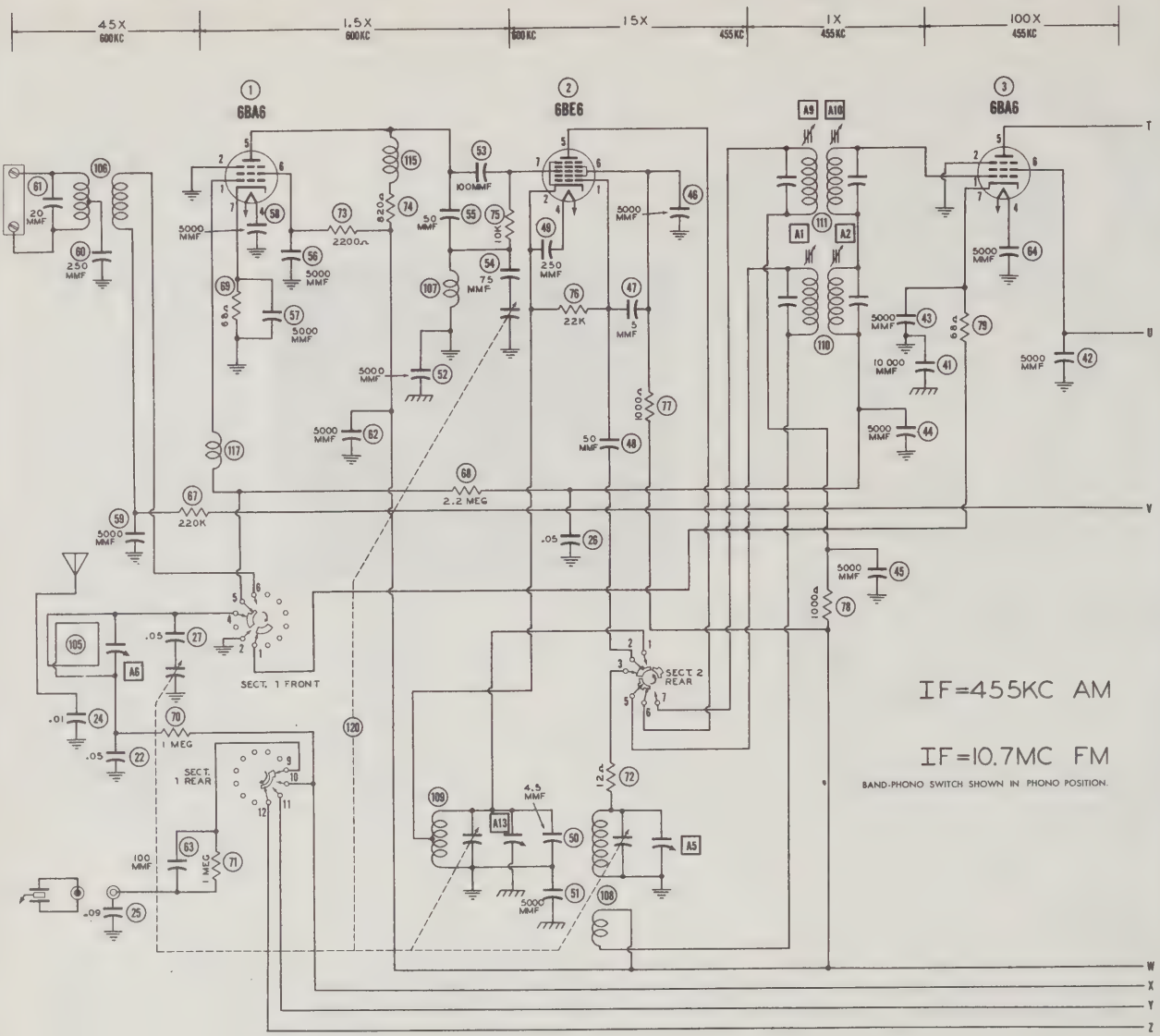




DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove FM dipole leads from terminal strip on loop antenna.
3. Remove four Phillips head screws holding loop antenna to cabinet.
4. Remove phono-pickup plug from chassis.
5. Disconnect phono-motor plug.
6. Remove speaker plug from chassis.
7. Remove two hex head bolts holding chassis mounting board in cabinet. Remove chassis and mounting board from cabinet.
8. Remove four hex head screws holding chassis to mounting board. Remove chassis from mounting board.
9. Remove four Phillips head wood screws holding speaker in cabinet. Remove speaker from cabinet.

DATE 2/48 SET #34 FOLDER #4c4-20



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

	Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡	1	6BA6	0V.	0V.	18VAC	24VAC	95VDC	95VDC	.85VDC	-
	2	6BE6	-12VDC§	0V.	11VAC	18VAC	100VDC	95VDC	0V.	-
	3	6BA6	0V.	0V.	24VAC	30VAC	95VDC	95VDC	.9VDC	-
‡	4	6BA6	0V.	0V.	36.5VAC	30VAC	95VDC	95VDC	.95VDC	-
‡	5	6AL5	0V.	-.4VDC	5.7VAC	0V.	-.6VDC	V.	-.4VDC	-
	6	6SQ7	0V.	-.5VDC	0V.	-.4VDC	0V.	55VDC	5.7VAC	11VAC
	7	25L6	0V.	36.5VAC	107VDC	102VDC	0V.	0V.	60VAC	5.2VDC
	8	25Z6	0V.	117VAC	117VAC	125VDC	117VAC	122VDC	94VAC	122VDC

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

§TAKEN WITH VACUUM TUBE VOLTMETER.

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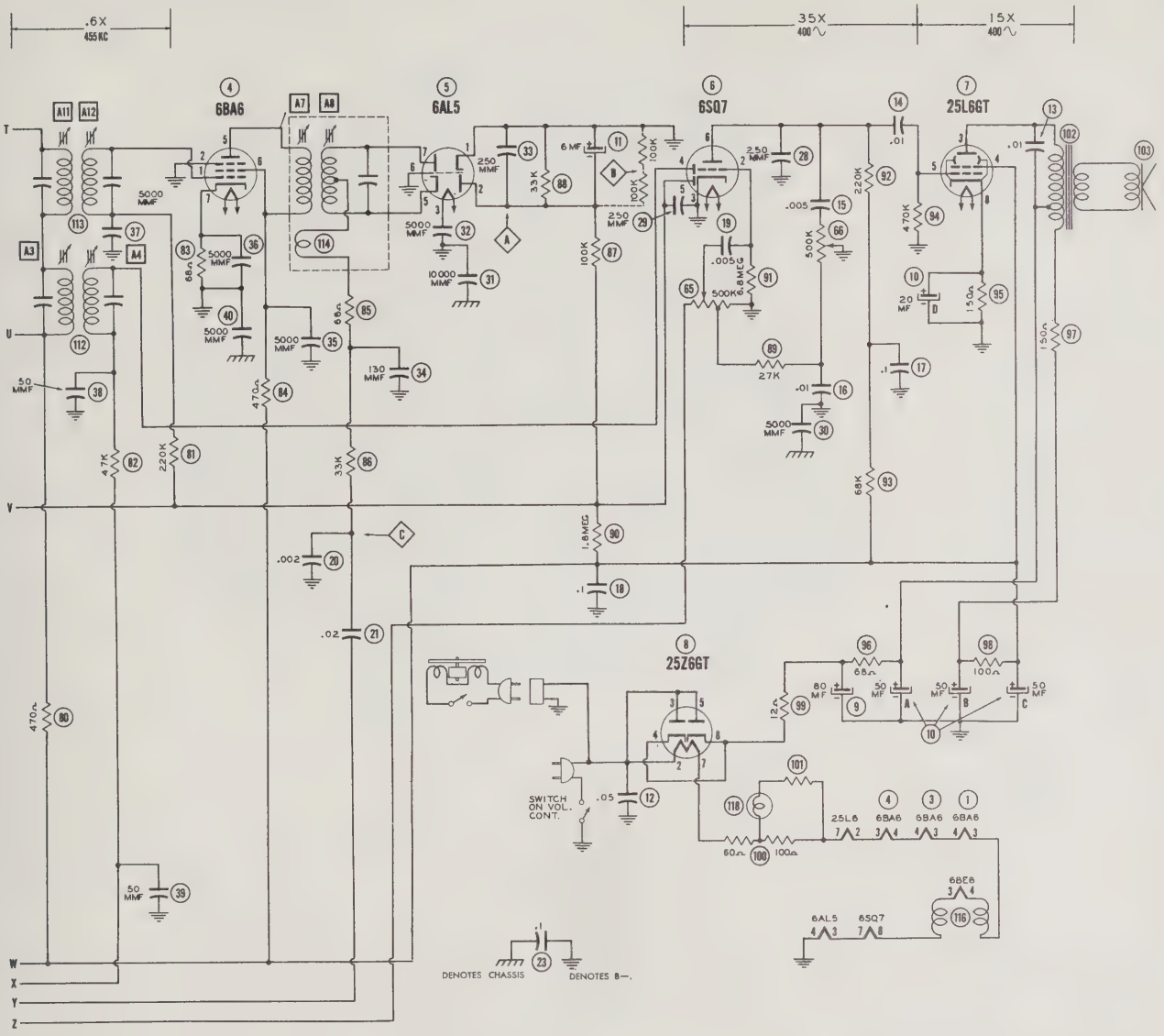
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
‡ 1	6BA6	380KΩ	0Ω	13Ω	18Ω	41KΩ	45KΩ	70Ω	-
2	6BE6	25KΩ	0Ω	8Ω	13Ω	40KΩ	40KΩ	10KΩ	-
3	6BA6	4 Meg.	0Ω	1Ω	22Ω	40KΩ	40KΩ	65Ω	-
‡ 4	6BA6	360KΩ	0Ω	27Ω	22Ω	40KΩ	40KΩ	70Ω	-
‡ 5	6AL5	0Ω	30KΩ	3.5Ω	0Ω	INF.	0Ω	INF.	-
6	6SQ7	INF.	7 Meg.	0Ω	500KΩ	130KΩ	330KΩ	3.5Ω	0Ω
7	25L6	INF.	27Ω	40KΩ	40KΩ	460KΩ	0Ω	44Ω	150Ω
8	25Z6	INF.	197Ω	197Ω	40KΩ	197Ω	40KΩ	175Ω	40KΩ

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

484-20

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

FM ALIGNMENT

Connect two 100KΩ resistors (values within 5%) in series. Connect them between Point A and B- with an RF choke made by wrapping about 20 turns of hookup wire in series with each lead as shown in Fig. 1. Vacuum tube voltmeter is connected as shown. Connect a zero center microammeter to the junction of these resistors to Point C in series with a choke wound same as those above. If a zero center microammeter is not available a 20000Ω per volt meter may be used. However extreme care must be used to keep reading at zero.

This microammeter is left connected throughout entire FM alignment to correct an drift of the signal generator or local oscillator.

FM DISCRIMINATOR ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4	250MMF.	High side to Pin #1 (grid) 6BA6 2nd IF Tube (4). Low side to B-.	10.7MC (unmodulated)	FM (clockwise)	Tuning cap. fully open.	VTVM and microammeter connected as shown in Fig. 1.	A7	Adjust for maximum deflection. Reduce signal generator to give approx. 5 volt reading.
5	250MMF.	"	"	"	"	"	A8	Adjust for zero reading on microammeter. A8 should not be touched after this step.

PRELIMINARY FM-IF ALIGNMENT

6	250MMF.	High side to Pin 7 (grid) 6BE6. Low side to B-.	10.7MC (unmodulated)	FM	Tuning cap. fully open.	Meters connected as shown in Fig. 1	A9,A10 A11,A12	Adjust for maximum deflection on VTVM. Attenuate signal to give approx 5 volt reading. Continue with Step 7 under VTVM or scope alignment.

FINAL FM-IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

7	250MMF.	High side to Pin 7 (grid) 6BE6. Low side to B-.	109MC (unmodulated)	FM	Tuning cap. fully open.	Meters connected as shown in Fig. 1	A13	Adjust for approx. maximum reading on VTVM and exact zero reading on microammeter.
8	250MMF	"	109MC (Freq.Mod. 400~ 25KC deviation)	"	"	"	A9,A10, A11,A12 A7	Adjust for maximum reading on VTVM. Maintain zero reading on microammeter by shifting sig. gen. frequency if necessary. While making adjustments turn up volume. If signal is free of distortion increase deviation to 75KC and repeat adjustments of this step. If done carefully there will be no distortion. If distortion is present repeat Steps 6, 7 and 8. Continue with Step 9.

FINAL FM-IF ALIGNMENT USING FM SIGNAL GENERATOR, VTVM AND OSCILLOSCOPE

Make oscilloscope connections as shown in Fig. 2. If no phase shift is encountered in scope pattern (double trace) the internal 60~ modulation frequency and synchronized sweep voltage of the signal generator may be used. If phase shift is encountered use the variable a-f oscillator in the signal generator (if so equipped) or an external a-f oscillator connected as shown in Fig. 2 for modulating the signal. The variable a-f oscillator can be shifted to give a single trace pattern. Use modulation freq. near 400~.

At all times during alignment keep microammeter at zero by shifting signal generator frequency if necessary

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7	250 MMF	High side to Pin 7 (grid) 6BE6. Low side to B-.	10.7MC (freq.mod. 25KC deviation)	FM	Tuning cap. fully open.	As shown in Fig. 2	A9,A10, A11,A12, A7.	Adjust for maximum reading on VTVM and straight line on scope as shown in Fig. 3.
8	250 MMF	"	10.7MC (freq.mod. 75KC deviation)	"	"	"	A9,A10, A11,A12, A7.	Adjust for maximum reading on VTVM and straight line on scope as shown in Fig. 3. After adjusting, increase deviation to approx. 125KC to 150KC. Pattern as shown in Fig. 3 should be obtained. If not repeat last two steps. Continue with Step 9.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9	2 150Ω carbon res.	Across FM dipole terminals.	109MC (unmodulated)	FM	Tuning cap. fully open.	Meters connected as in Fig. 1.	A13	Adjust for approx. maximum reading on VTVM and exact zero center on microammeter.
10	"	"	106MC	"	Tune for maximum deflection on VTVM.	"		Bend slightly FM rotor plates of ant. section of tuning cap. for maximum deflection. Repeat Steps 9 & 10 until no further improvement can be made.
11	"	"	98MC	"	"	"		Bend slightly FM rotor plates of ant. section of tuning cap. for maximum deflection.
12	"	"	90MC	"	"	"		Bend slightly FM rotor plates of ant. section of tuning cap. for maximum deflection. Repeat Steps 10, 11 & 12 until no further improvement can be made.

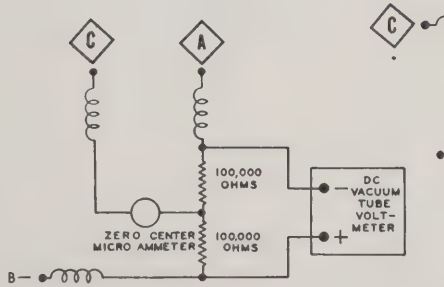

FIG 1

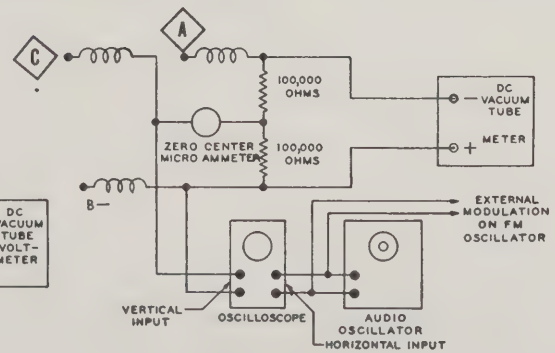

FIG. 2

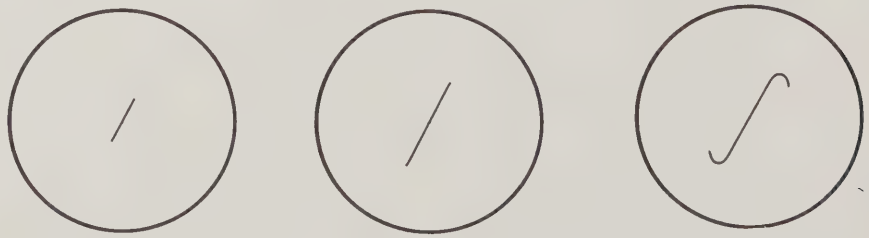

FIG. 3

FOR AM ALIGNMENT SEE FRONT PAGE OF THIS FOLDER.

PHOTOFACT* Folder

*TRADE MARK

SPARTON MODEL 6AM06 (Ch. 6-06) BATTERY-LINE OPERATED

SPARTON MODEL 6AM06 (Ch. 6-06) BATTERY-LINE OPERATED

SPARTON MODEL 6AM06 (Ch. 6-06) BATTERY-LINE OPERATED

SPARTON MODEL 6AM06

TRADE NAME	Sparton, Model 6AM06 (Ch. 6-06)
MANUFACTURER	Sparks Withington Co., Jackson, Mich.
TYPE SET	Three Power Operated Portable Superheterodyne with Loop Antenna
TUBES (SIX)	Types, 1T4 RF Amp., 1R5 Converter, 1T4 IF Amp., 1S5 Det.-AVC-AF, 3Q5GT Power Output, 117Z6GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply
RATING	.19 Amp. @ 117 Volts AC or 55MA @ 9 Volts DC and 8.5MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1720KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD	High side to Pin 6 (grid) 1R5. Low side to B-.	456KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. IF AC power is used without an isolation transformer reduce dummy ant. to 200MMF to reduce hum modulation.
2		Loop	1500KC	1500KC	"	A5,A6, A7	Set chassis in cabinet and connect loop. Pull chassis back just far enough to make adjustment screws accessible. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	600KC	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 2 & 3 until no further improvement can be made. Check sensitivity and calibration at 600KC, 1000KC 1500KC.

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DATE 2/47 SET #34 FOLDER #484-21

PARTS LIST AND DESCRIPTIONS

SPARTON MODEL 6-06
BATTERY-LINE OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SPARTON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	1T4	1T4	6AR	
2	Converter	1R5	1R5	7AT	
3	IF Amp.	1T4	1T4	6AR	
4	Det.-AVC-AF	1S5	1S5	6AU	
5	Power Output	3Q5GT	3Q5GT	7AP	
6	Rectifier	117Z6GT	117Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	20	150	A9003-4	DY-402010-150	EL-313	AF844D	UP42215	▲ Filter
B	30	150						■ "
C	10	150						"
8A	200	10	A9007-1	DY-8040-150	EL-351*	AF44D40A*	UP6CJ64*	■ Filament Bypass
B	40	10		M-100-12	TA-50			▲ " "
9	.05	400	B9002-FL503	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
10	.001	1000	B9002-FN102	S-6-001	TC-21	684-001	DT6D1	Output Plate Bypass.
11	.005	600	B9002-FK502	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
12	.005	600	B9002-FK502	S-6-005	TC-25	684-005	DT6D5	" "
13	.05	200	B9002-FK503	S-4-05	TC-15	484-05	DT2S5	AF Screen Bypass
14	.05	200	B9002-FK503	S-4-05	TC-15	484-05	DT2S5	AVC Filter
15	.02	200	B9002-FK203	S-4-02	TC-12	484-02	DT2S2	IF Grid Filter
16	.05	200	B9002-FK503	S-4-05	TC-15	484-05	DT2S5	RF Bypass Pwr. Supply
17	.05	200	B9002-FK503	S-4-05	TC-15	484-05	DT2S5	Screen Bypass
18	.1	400	B9002-FL104	S-4-1	TC-1	484-.1	DT4P1	Line Isolation
19	.1	200	B9002-FK104	S-2-1	TC-1	484-.1	DT2P1	Filament Bypass
20	20	500	B9001-F-200	MOS.5-41	MS-42	1468-000025	5W542	AF Plate Bypass
21	240	500	B9001-G-241	MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
22	100	500	B9001-F-101	MO.5-31	1FM-31	1468-0001	5W5T1	" " "
23	100	500	B9001-F-101	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
24	300	500	B9001-F-301	MOS.5-33	MS-33	1469-0003	5R5T3	Fixed Pad
25	240	500	B9001-G-241	MO.5-325	1FM-325	1468-00025	5W5T25	RF Coupling
26	240	500	B9001-G-241	MO.5-325	1FM-325	1468-00025	5W5T25	" "

*Parallel sections to obtain desired capacity.

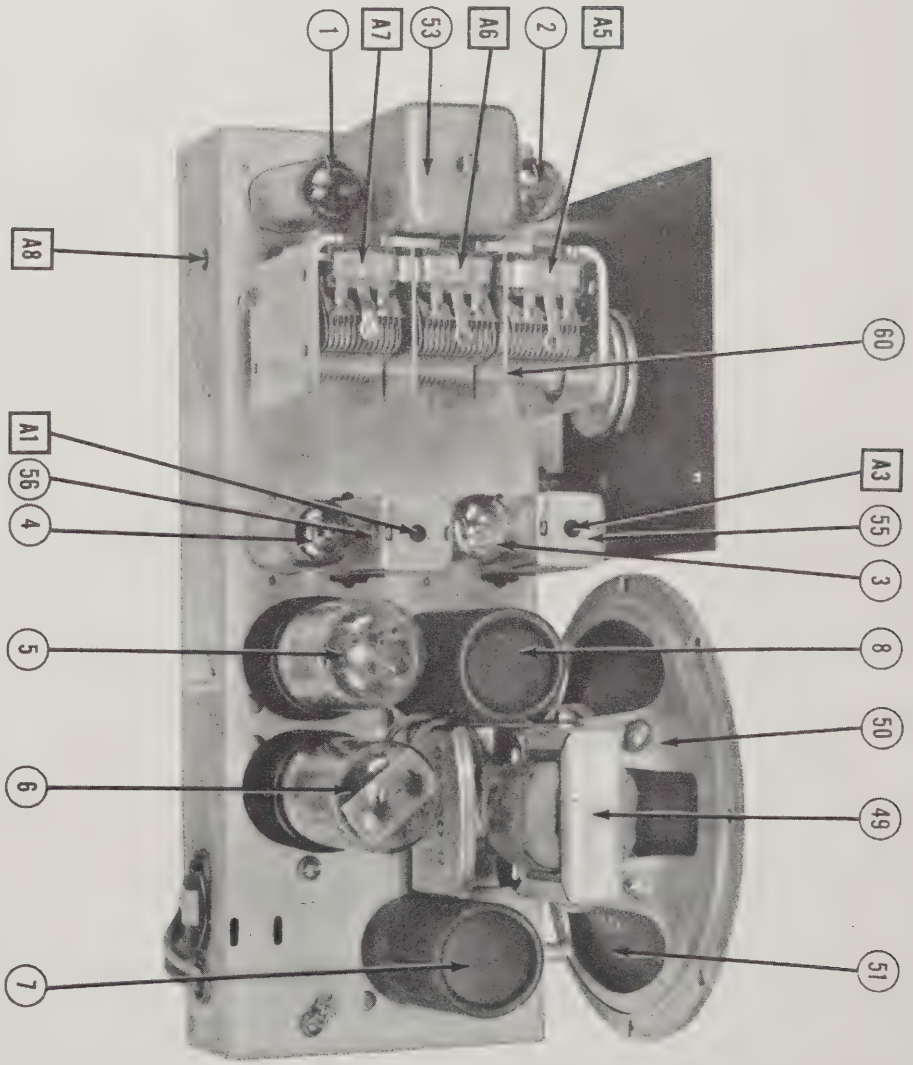
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
27A	1 Meg.	½	A18002-1	D13-137	AM-63-2	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 27A per instructions
C	Switch		" "	42	SW-A2	" " " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON PART No.	IRC PART No.	IDENTIFICATION CODES
28	1 Meg.	½	C8000-B12S105	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
29	15 Meg.	½	C8000-B12S156	BTS-15 Meg.	Br.-Grn.-Blue RF Grid
30	20KΩ	½	C8000-B12G203	BTS-22K	Red-Blk.-Or. RF Plate Load
31	56KΩ	½	C8000-B12N563	BTS-56K	Grn.-Blue-Or. Oscillator Coil Shunt
32	100KΩ	½	C8000-B12S104	BTS-100K	Br.-Blk.-Yl. Oscillator Grid
33	22KΩ	½	C8000-B12G223	BTS-22K	Red-Red-Or. Screen Dropping
34	4.7 Meg.	½	C8000-B12S475	BTS-4.7 Meg.	Yl.-Vi.-Grn. IF Grid
35	3.3 Meg.	½	C9000-B12S335	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
36	47KΩ	½	C8000-B12S473	BTS-47K	Yl.-Vi.-Or. Diode Filter
37	10 Meg.	½	C8000-B12S106	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
38	4.7 Meg.	½	C8000-B12S475	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Screen Dropping
39	1 Meg.	½	C8000-B12S105	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
40	3.3 Meg.	½	C8000-B12S335	BTS-3.3 Meg.	Or.-Or.-Grn. Output Grid
41	620Ω	½	C8000-B12G621	BTS-680	Blue-Red-Br. Filament String
42	820Ω	½	C8000-B12G821	BTS-820	Gray-Red-Br. Filament String
43	1000Ω	½	C8000-B12G102	BTS-1000	Br.-Blk.-Red Filament String
44	200Ω	½	C8000-B12G201	BW-½-220	Red-Blk.-Br. Filament String
45	200Ω	½	C8000-B12G201	BW-½-220	Red-Blk.-Br. Filament String
46	2634Ω	10	A8001-1		Filament Dropping

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	SPARTON PART No.	IRC PART No.	
47	2000Ω	½	C8000-B12G201	BTS-2200	Red-Blk.-Red Filter
48	3900Ω	½	C8000-B12G392	BT-2-3900	Or.-white-Red "

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		SPARTON PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
49	8400Ω	3.7Ω	700Ω	.8Ω	Part of PC63000-9	A-3848†	T22S47†	A-2900†	†Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			SPARTON PART No.	JENSEN PART No.	QUAM PART No.	
50	FIELD	VC IMP.	PC63000-9	ST-105 Mod. P5-X	5A1	
	PM	3.7Ω				
51	CONE DIA.	VC DIA.	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			
	4-3/4"	1/2"				

R F COILS

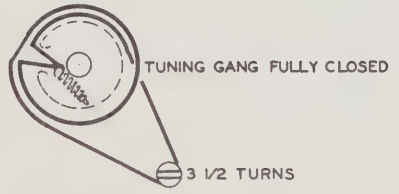
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	SPARTON PART No.	MEISSNER PART No.
52	Loop Ant.		1.5Ω		
53	RF Coil		4.2Ω	A5025-2	14-1027
54	Osc. Coil	2Ω	5.5Ω	A5019-2	14-1040
55	Input IF	20.5Ω	20.5Ω	A5031	16-6678
56	Output IF	20.5Ω	20.5Ω	A5031	16-6678

BATTERIES

ITEM No.	VOLTAGE	SPARTON PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
57	9V "A"	DB70-A2	#746			2 Used in series
58	90V "B"	DB70-B1		#482		2 Used in series

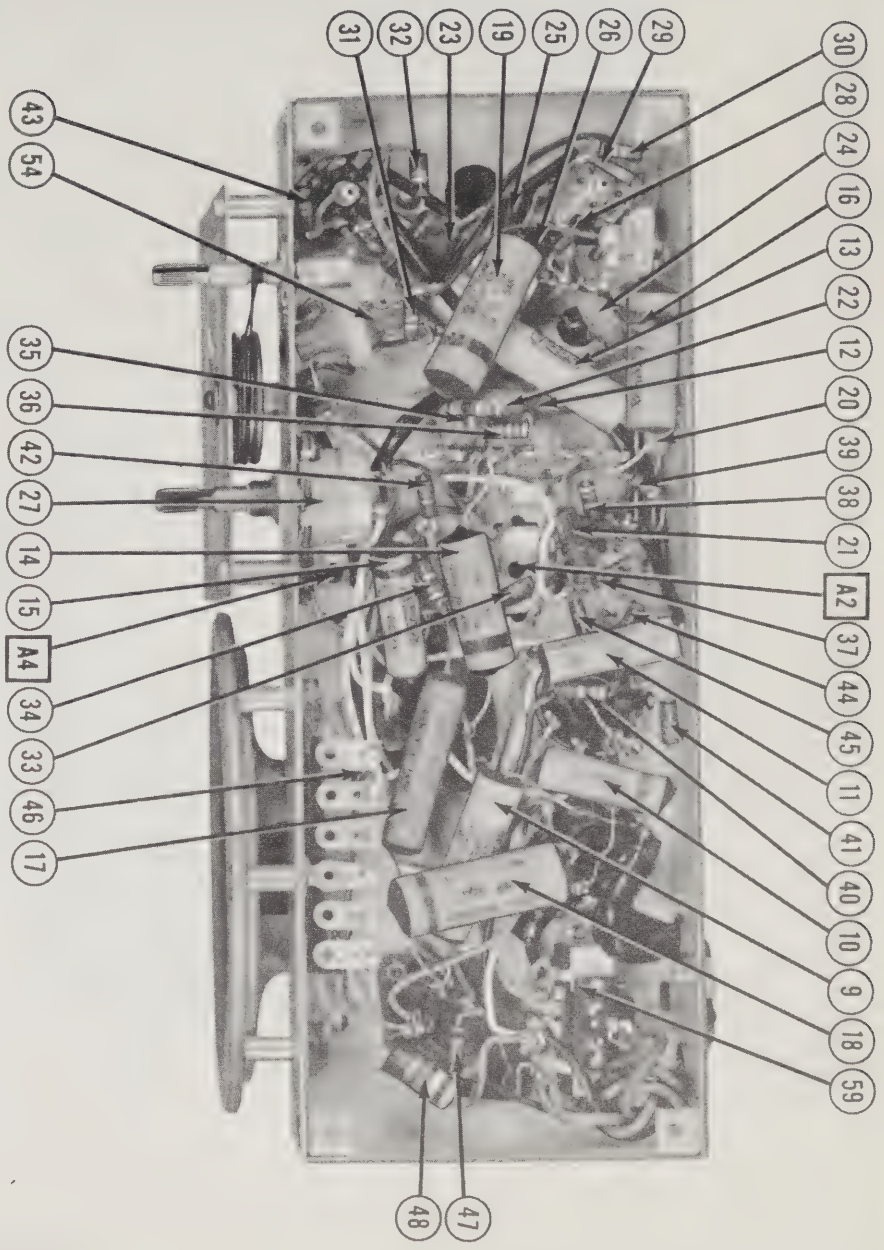
MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
59	Switch	A12004	AC-DC-Batt.
60	3 Gang Var. Cap	B-9005	(24-464MMF) each section
A8	Padder	A10000-5	Osc. Adj.
	Dial Crystal	B60025	
	Knob	A41004	
	Dial Pointer	A21001	



DIAL CORD DRIVE

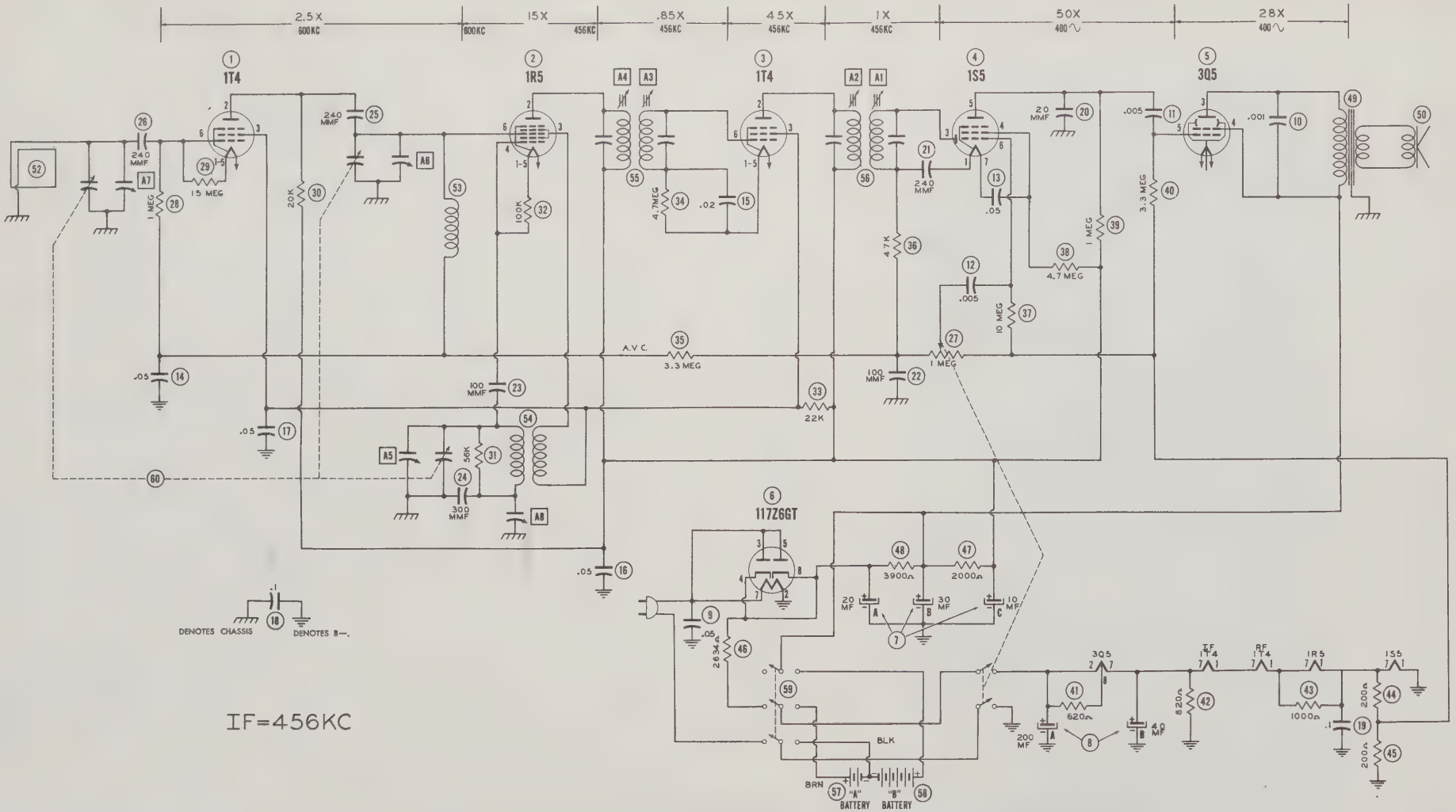
CHASSIS—BOTTOM VIEW



DATE 2/47 SET #34 FOLDER #484-21

SPARTON MODEL 6-06 BATTERY-LINE OPERATED

SPARTON MODEL 6-06 BATTERY-LINE OPERATED



VOLTAGE READINGS

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1T4	3VDC	80VDC	42VDC	88VDC	3VDC	0V.	4.4VDC	-
2	1R5	1.4VDC	88VDC	42VDC	-7VDC§	1.4VDC	0V.	3VDC	-
3	1T4	4.4VDC	88VDC	42VDC	-.1VDC	4.4VDC	-.15VDC	5.6VDC	-
4	1S5	0V.	88VDC	0V.	3.8VDC	3.8VDC	0V.	1.4VDC	-
5	3Q5	95VDC	8.5VDC	92VDC	95VDC	0V.	.6VDC	5.6VDC	7VDC
6	117Z6	0V.	0V.	117VAC	135VDC	117VAC	0V.	117VAC	135VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1T4	*	28KΩ	29KΩ	9KΩ	*	4 Meg.	*	-
2	1R5	*	9KΩ	29KΩ	100KΩ	*	4 Meg.	*	-
3	1T4	*	9KΩ	29KΩ	5 Meg.	*	5 Meg.	*	-
4	1S5	*	9KΩ	1 Meg.	5 Meg.	1 Meg.	10 Meg.	*	-
5	3Q5	6.5KΩ	*	6.5KΩ	6.5KΩ	4 Meg.	100Ω	*	*
6	117Z6	INF.	0Ω	250Ω	2.5KΩ	250Ω	INF.	250Ω	2.5KΩ

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

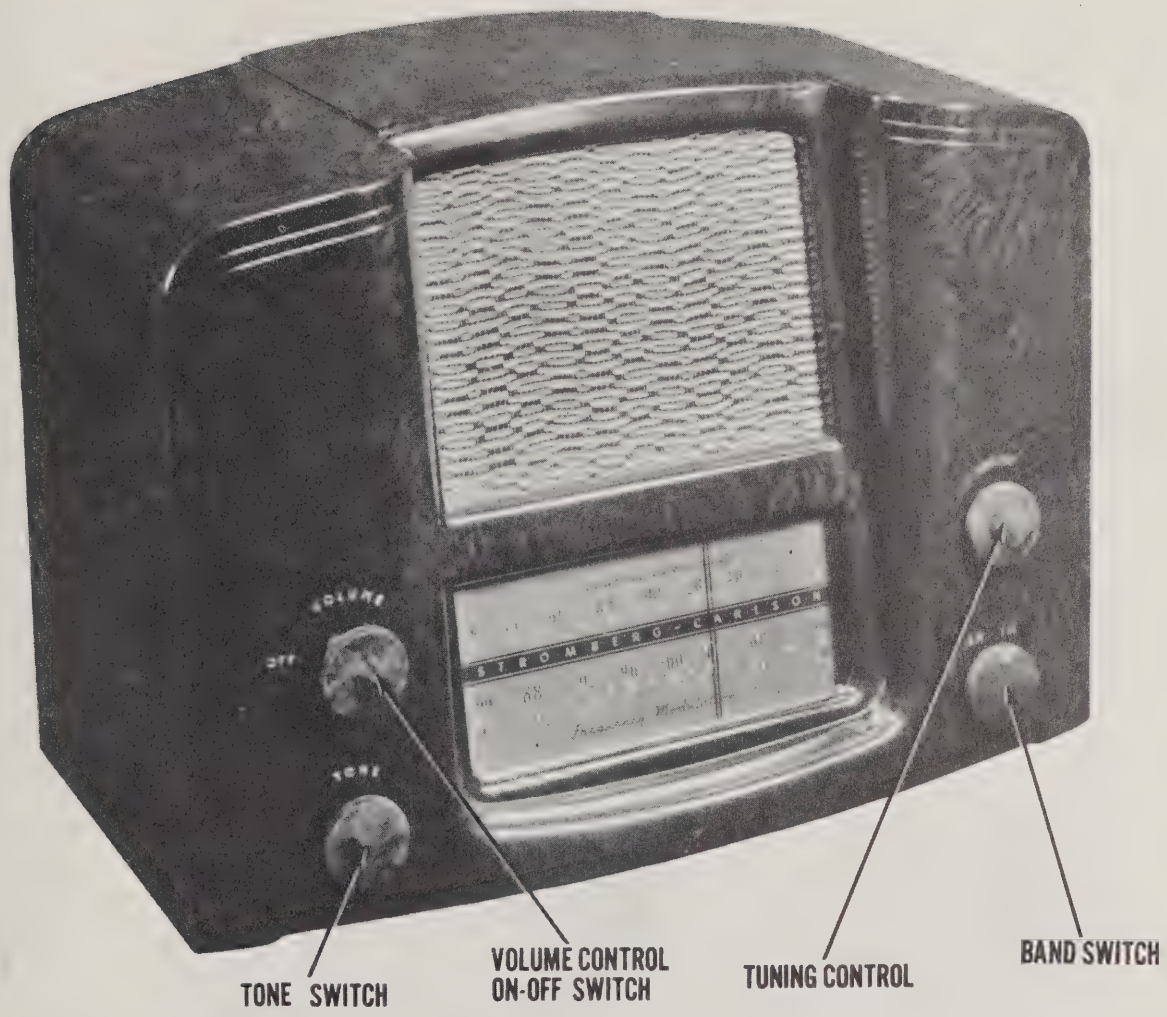
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

484-21

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to low side of volume control.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

STROMBERG-CARLSON
MODEL 1204 (Ch. 112021)



STROMBERG-CARLSON
MODEL 1204 (Ch. 112021)

STROMBERG CARLSON MODEL 1204

TRADE NAME	Stromberg Carlson, Model 1204 (Ch. 112021)
MANUFACTURER	Stromberg Carlson Co., 100 Carlson Rd., Rochester 3, N. Y.
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna
TUBES (SEVEN)	Types, 12BA6 RF Amp., 12BE6 Converter, 12BA6 1st IF Amp., 12BA6 2nd IF Amp., 12H6 FM Det., 6AQ6 AM Det.-AVC-AF, 50L6GT Power Output.
POWER SUPPLY	105-125 Volts AC-DC
RATING	.42 Amp. @ 117 Volts AC
TUNING RANGE -	BROADCAST 540-1600KC FREQ. MOD. - 88-108MC

HOWARD W. SAMS & CO., INC. • 2924 East Washington Street • Indianapolis 6, Indiana

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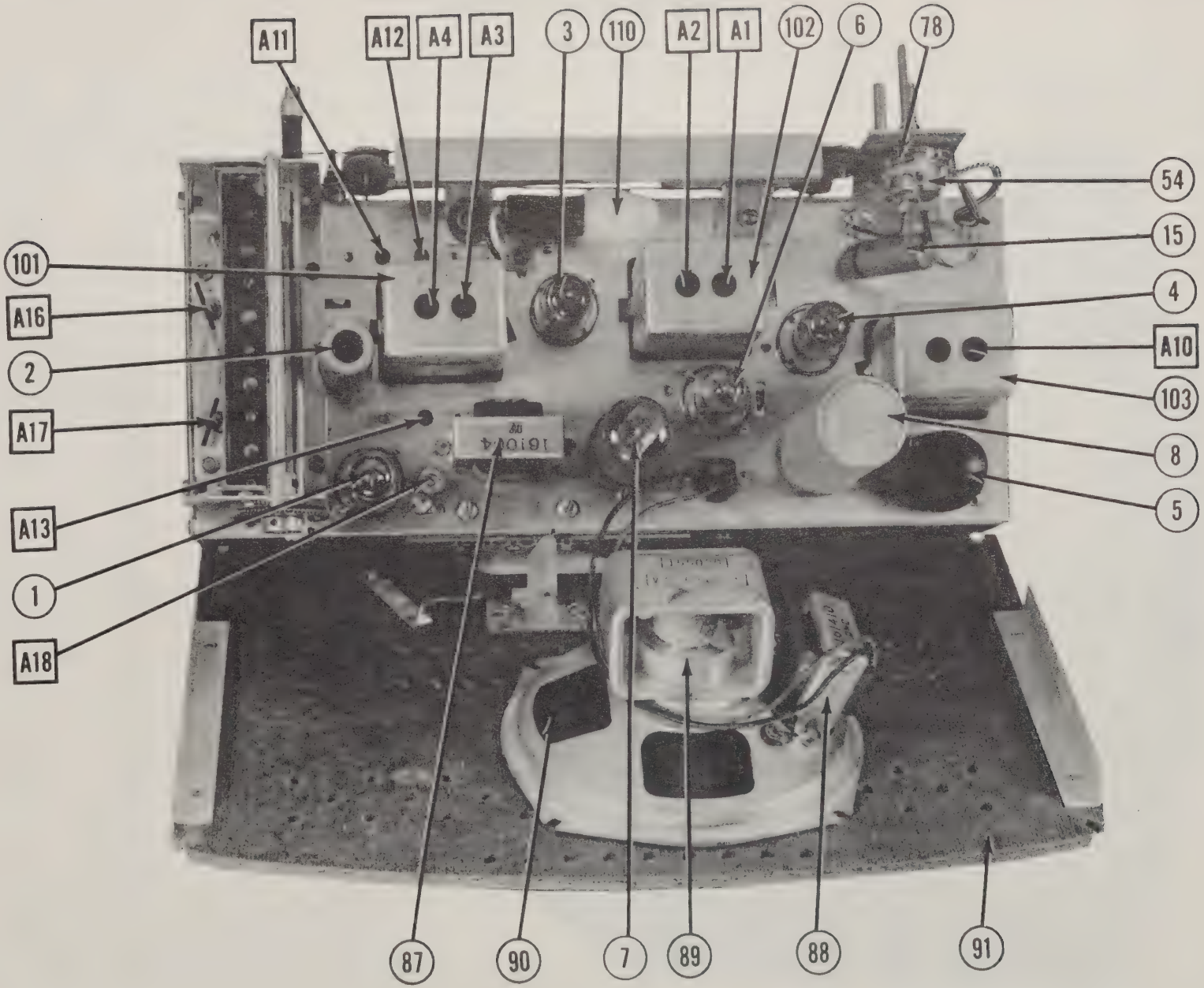
DATE 2/47 SET #34 FOLDER #484-22


A11
A12
A4
A3
3
110
A2
A1
102
6
78
54
15
4
A10
103
8
5
101
A16
2
A17
A13
1
A18
87
90
7
89
88
91

85 18 32 33 9 77 17 76 E 75 D 74 A9 72 73 19 13 81 111
84 10 14 86 79 71 B 109 31 89 11 12 82 83 53 112 56 50 93 58 55 52 59 29 47 39 48 60 46 106 105 62 92 104 64 61 57 40 96 45 44 43 41 100 42 36 107 C 65 97 119 38 113 94 118 99 26 28 98 95 A14 A15 A 27 37 A5 63 A7 66 25 69 35 68 24 22 117 115 A8 70 67 A6 23 16 34 114 116 21 20

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	12BA6	12BA6	7BK	
2	Converter	12BE6	12BE6	7CH	
3	1st IF Amp.	12BA6	12BA6	7BK	
4	2nd IF Amp.	12BA6	12BA6	7BK	
5	FM-Det.	12H6	12H6	7Q	
6	AM Det.-AVC-AF	6AQ6	6AQ6	7BT	
7	Power Output	50L6GT	50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	50	200	111027	DY-419	EL-452	AF101010D4A	UP55515C	◓ Filter
B	50	200						■ "
C	50	200						▲ "
D	25	25						Cathode Bypass
9	5	50	111030	M-8-150	TA-55	PRS150-4	BR550	Stabilizing Cap.
10	.05	600	29891	MPH-6-05	TC-15	684-05	DT6S5	Line Filter
11	.02	600	25484	S-6-02	TC-12	684-02	DT6S2	Output Plate Bypass
12	.005	500	110419	QA1M-6-.005	TC-25	538T-.005	ZNW4D5	Audio Coupling
13	.003	500	110488	QA1M-6-.003	TC-23	538T-.003	ZNW4D2	Tone Comp.
14	.005	500	110419	QA1M-6-.005	TC-25	538T-.005	ZNW4D5	Audio Coupling
15	.05	600	29891	S-6-05	TC-15	684-05	DT6S5	Vol. Cont. Isolation
16	.005	500	110419	QA1M-6-.005	TC-25	538T-.005	ZNW4D5	Audio Coupling
17	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	AVC Filter
18	.003	500	110488	QA1M-6-.003	TC-23	538T-.003	ZNW4D2	De-emphasis
19	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	2nd IF Plate Decoupling
20	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	2nd IF Screen Bypass
21	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	2nd IF Cathode Bypass
22	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	1st IF Plate Decoupling
23	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	RF Bypass Pwr. Supply
24	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	1st IF Screen Bypass
25	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	AVC Filter
26	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	Conv. Plate Decoup.
27	.005	500	110419	QA1M-6-.005	TC-25	538T-.005	ZNW4D5	Osc. Feedback
28	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	RF Bypass
29	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	Screen Bypass
30	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	AVC Filter-See Note 2
31	100	500	110451	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
32	75	500	110483	MOS.5-47	1FM-475	1468-000075	5W5Q7	Diode Load Cap.
33	75	500	110483	MOS.5-47	1FM-475	1468-000075	5W5Q7	Diode Load Cap.
34A	100	500	110478	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter-See Note 1
B	100	500		MO.5-31	1FM-31	1468-0001	5W5T1	" " "
35	100	500	110451	MO.5-31	1FM-31	1468-0001	5W5T1	1st IF Cathode Bypass
36	33	500	110407	MO.5-44	MS-44	1468-00004	5W5Q4	Osc. Grid Cap.
37	24	500	110403	MO.5-425	MS-425	1469-000025	5W5Q25	Fixed Padder-See Note 2
38	470	500	110455	MO.5-35	1FM-35	1468-0005	5W5T5	Conv. Screen Bypass
39	100	500	110451	MO.5-31	1FM-31	1468-0001	5W5T1	Filament Bypass
40	100	500	110451	MO.5-31	1FM-31	1468-0001	5W5T1	" "
41	15	500	110468		MS-415			Osc. Feedback
42	33	500	110407	MO.5-44	MS-44	1468-00004	5W5Q4	Osc. Feedback
43	24	500	110403	MO.5-425	MS-425	1468-000025	5W5Q25	RF Coupling
44	270	500	110208	MO.5-33	1FM-33	1468-00025	5W5T25	Fixed Trimmer
45	27	500	110485	MO.5-43	MS-43	1468-000025	5W5Q25	RF Coupling
46	100	500	110451	MO.5-31	1FM-31	1468-0001	5W5T1	RF Coupling
47	100	500	110451	MO.5-31	1FM-31	1468-0001	5W5T1	RF Cathode Bypass
48	1000	500	110425	MO.5-21	1FM-21	1467-001	1W5D1	RF Coupling
49	*							Fixed Pad-See Note 2
50	5000	300	110491	MW.5-25	1FM-25	1467-005	1D5D5	Loop Ant. Coupling
51	33	500	110486	MO.5-44	MS-44	1468-00004	5W5Q4	Fixed Trimmer-See Note 2
52	1000	500	110425	MO.5-21	1FM-21	1467-001	1W5D1	RF Bypass
53	100	500	110451	MO.5-31	1FM-31	1468-0001	5W5T1	Line Ant. Coupling
117	.01	500	110420	QA1M-6-.01	TC-11	538T-.01	DT4S1	Filament Bypass
118	1000	500	110425	MO.5-21	1FM-21	1467-001	1W5D1	Band Sw. Bypass
119	24	500	110403	MO.5-425	MS-425	1468-000025	5W5Q25	Fixed Trimmer

*24MMF, 33MMF or 47MMF used in this application.
Note 1 - This unit includes a 47KΩ resistor which makes a complete diode filter unit.
Note 2 - Not used in all models.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
54A	1 Meg.	½	145031	A19-137X	T-112	Volume Control tapped @ 500KΩ
B	Shaft		Not Req.	A	Not Req.	Attach to 54A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
55	100KΩ	½	149113	BTS-100K	Br.-Blk.-Yl. Antenna Loading
56	2200Ω	½	28162	BTS-2200	Red-Red-Red External Antenna Loading
57	10Ω	½	149089	BW-½-10	Br.-Blk.-Blk. Parasitic Suppressor
58	1 Meg.	½	149119	BTS-1 Meg.	Br.-Blk.-Grn. RF Grid
59	68Ω	½	28144	BW-½-68	Blue-Gray-Blk. RF Cathode
60	680Ω	½	28156	BTS-680	Blue-Gray-Br. RF Screen Decoupling
61	2700Ω	½	28163	BTS-2700	Red-Vi.-Red RF Plate Load
62	1 Meg.	½	149119	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
63	680Ω	½	28156	BTS-680	Blue-Gray-Br. Converter Plate Decoupling
64	680Ω	½	28156	BTS-680	Blue-Gray-Br. Converter Screen Decoupling
65	22KΩ	½	149109	BTS-22K	Red-Red-Or. Oscillator Grid
66	100KΩ	½	149113	BTS-100K	Br.-Blk.-Yl. AVC Network
67	2.2 Meg.	½	149121	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
68	68Ω	½	28144	BW-½-68	Blue-Gray-Blk. 1st IF Cathode
69	680Ω	½	28156	BTS-680	Blue-Gray-Br. 1st IF Screen Decoupling
70	680Ω	½	28156	BTS-680	Blue-Gray-Br. 1st IF Plate Decoupling
71	470KΩ	½	149117	BTS-470K	Yl.-Vi.-Yl. Diode Load
72	68Ω	½	28144	BW-½-68	Blue-Gray-Blk. 2nd IF Cathode
73	680Ω	½	28156	BTS-680	Blue-Gray-Br. 2nd IF Screen Decoupling
74	22KΩ	½	149109	BTS-22K	Red-Red-Or. De-emphasis
75	470KΩ	½	149117	BTS-470K	Yl.-Vi.-Yl. AVC Network
76	15KΩ	½	149250	BTS-15K	Br.-Grn.-Or. Ratio Detector Diode Load
77	15KΩ	½	149250	BTS-15K	Br.-Grn.-Or. " " " "
78	47KΩ	½	149111	BTS-47K	Yl.-Vi.-Or. Tone Compensation
79	6.8 Meg.	½	149124	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
80	330KΩ	½	149116	BTS-330K	Or.-Or.-Yl. AF Plate Load
81	2.2 Meg.	½	149121	BTS-2.2 Meg.	Red-Red-Grn. Tone Compensation
82	470KΩ	½	149117	BTS-470K	Yl.-Vi.-Yl. Output Grid
83	150Ω	1	149168	BW-1-150	Br.-Grn.-Br. Output Cathode
84	100Ω	1	149167	BW-1-100	Br.-Blk.-Br. Filter
85	15Ω	1	149219	BW-1-15	Br.-Grn.-Blk. Rectifier Ballast
86	300Ω	1	149229	BW-1-330	Or.-Blk.-Br. Series Pilot Light
116	47KΩ	½	110478	BTS-47K	Yl.-Vi.-Or. Diode RF Filter-See Note

Note-This resistor is part of diode filter unit.

FILTER CHOKE

ITEM NO.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: STROMBERG-CARLSON PART NO.	REPLACEMENT DATA: STANCOR PART NO.	REPLACEMENT DATA: THORDARSON PART NO.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
87	.028A	320Ω	5 Henries	161004	C-1706	T20C52	C-2975	

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: THORDAR'N PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
88	1800Ω	3.6Ω	165Ω	.5Ω	Part of 155029	A-3876	T22S45	A-2928	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: STROMBERG-CARLSON PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
	FIELD	VC IMP.		ST-109		
89A	PM	3.6Ω	155029	Mod. P6-W	6A21	
B			155030			Used in later production only.
	CONE DIA.	VC DIA.				
90	5-3/8"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

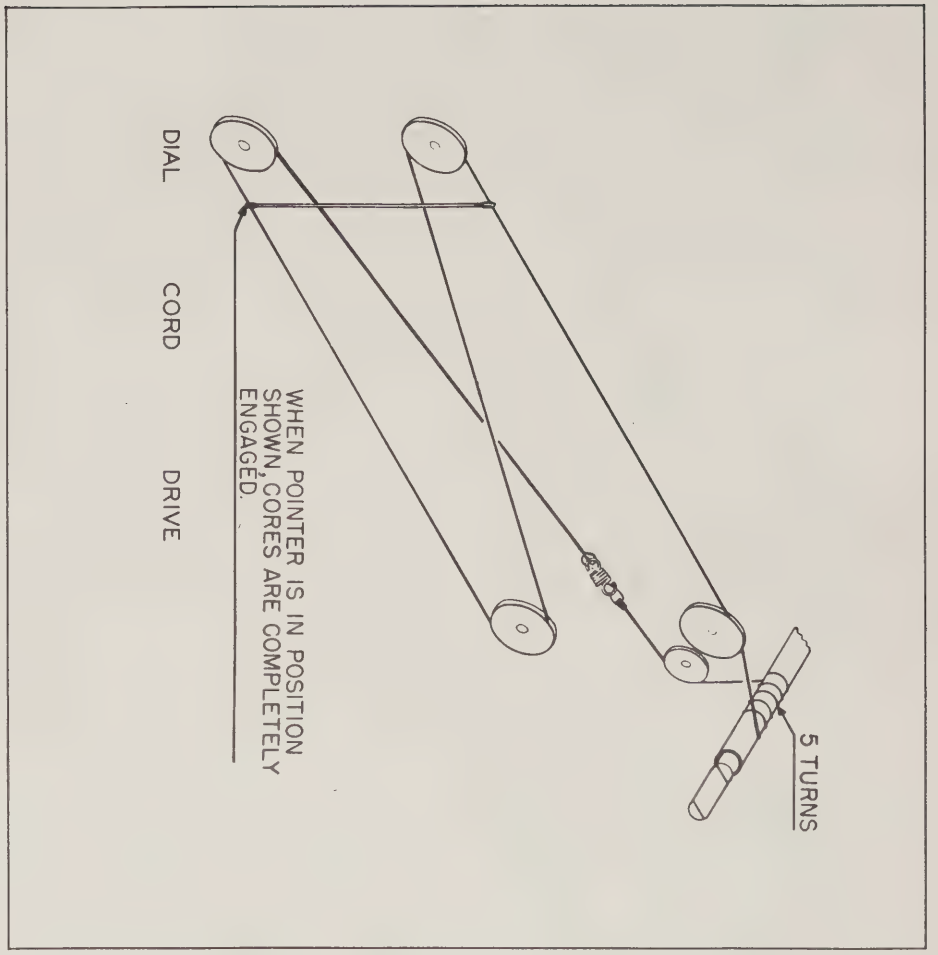
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA STROMBERG-CARLSON PART No.	REPLACEMENT DATA MEISSNER PART No.
91	Loop Ant.		.9Ω		
92	AM Ant.Coil		8.2Ω	114041	
93	FM " "	0Ω	0Ω	114036	
94	AM RF Coil		8Ω	114041	
95	AM RF Series Trim		.9Ω	114043	
96	FM RF Coil		0Ω	114029	
97	AM Osc.Coil		5.5Ω	114041	
98	AM Osc. Series Trim		1.5Ω	114043	
99	AM Shunt Osc. Coil		6.2Ω	114045	
100	FM Osc.Coil		0Ω	114042	
101A	Input IF AM	9.1Ω	8.9Ω	114311	
B	" " FM	.5Ω	.2Ω		
102A	Output IF AM	9.5Ω	9.2Ω	114333	
B	" " FM	.2Ω	.1Ω		
103	FM Det.Trans.	.8Ω	.5Ω	161228	
104	Fil. Choke		0Ω	114621	
105	" "		0Ω	114621	
106	Plate Choke		0Ω	114620	
107	Cathode Chk.		0Ω	114620	
108	Screen Choke		0Ω	114622	
109A	Ant.Chk.Coil		0Ω	114616	
B	" " "		0Ω		

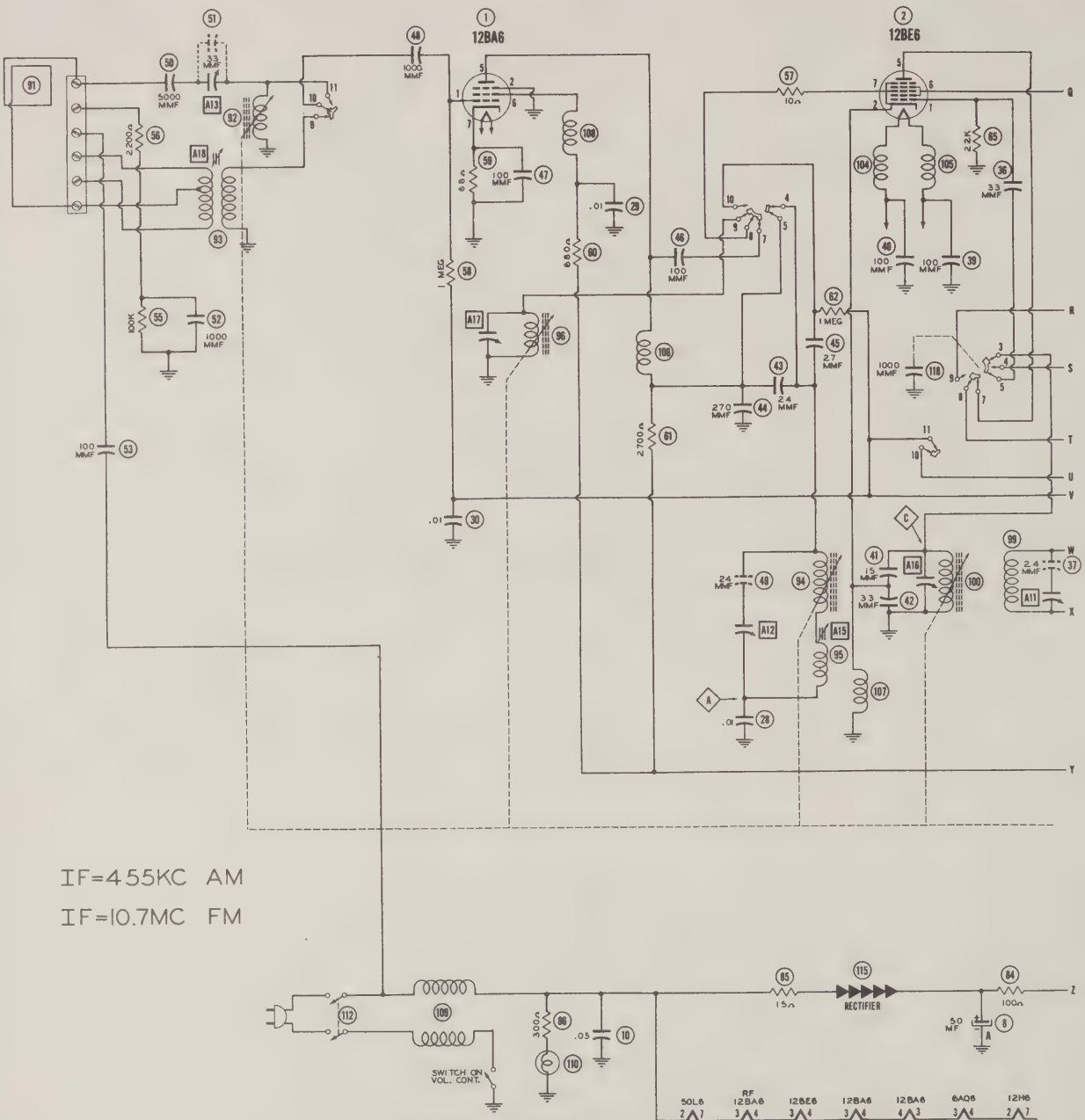
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA STROMBERG-CARLSON PART No.	REPLACEMENT DATA	INSTALLATION NOTES
110	Screw	120					Type C7

MISCELLANEOUS

ITEM No.	PART NAME	STROMBERG-CARLSON PART No.	NOTES
111	Switch	156017	Tone
112	"	158018	Interlock
113	"	158016	Band
114	"	158028	Audio (AM-FM)
115	Rectifier	162058	Selenium
A11	Trimmer	110017	AM Osc. Adj.
A12	"	110017	AM RF Adj.
A13	"	110024	AM Ant. Adj.
A16	"	110025	FM Osc. Adj.
A17	"	110025	FM RF Adj.
	Dial Pointer	31969	





VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	-5.4VDC	0V.	65VAC	52VAC	85VDC	112VDC	1VDC	-
2	12BE6	-8VDC‡	0V.	52VAC	43VAC	117VDC	110VDC	0V.	-
3	12BA6	0V.	0V.	43VAC	31VAC	117VDC	117VDC	1.6VDC	-
‡ 4	12BA6	0V.	0V.	18.5VAC	31VAC	112VDC	116VDC	1.25VDC	-
‡ 5	12H6	0V.	12VAC	-.6VDC	-.2VDC	.25VDC	.15VDC	0V.	.6VDC
6	6AQ6	-.5VDC	0V.	18.5VAC	12VAC	-.4VDC	-.4VDC	47.5VDC	-
7	50L6GT	0V.	117VAC	118VAC	115VDC	0V.	125VDC	65VAC	7.2VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12BA6	4 Meg.	0Ω	60Ω	50Ω	62KΩ	60KΩ	69Ω	-
2	12BE6	20KΩ	.1Ω	50Ω	40Ω	60KΩ	60KΩ	4 Meg.	-
II	12BA6	3 Meg.	0Ω	40Ω	30Ω	60KΩ	60KΩ	75Ω	-
‡ 4	12BA6	.1Ω	0Ω	19Ω	30Ω	60KΩ	60KΩ	74Ω	-
‡ 5	12H6	0Ω	14Ω	15KΩ	500KΩ	500KΩ	500KΩ	0Ω	15KΩ
6	6AQ6	7 Meg.	0Ω	19Ω	14Ω	540KΩ	540KΩ	400KΩ	-
7	50L6GT	INF.	95Ω	60KΩ	60KΩ	500KΩ	60KΩ	60Ω	150Ω

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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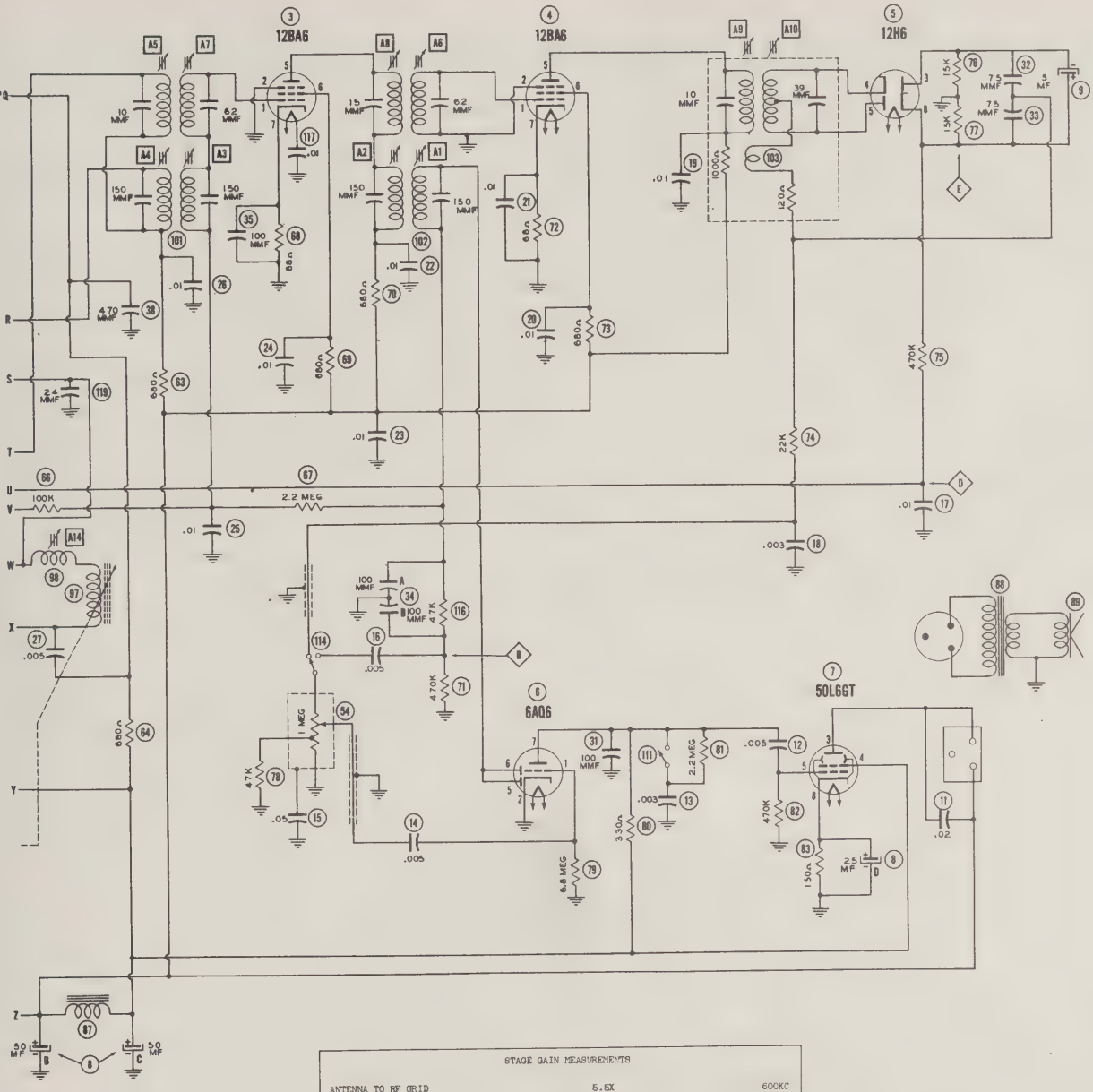
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



STAGE GAIN MEASUREMENTS		
ANTENNA TO RF GRID	5.5X	600KC
RF GRID TO CONVERTER GRID	10X	600KC
CONVERTER GAIN	1cX	IN 600KC OUT 455KC
1st IF TRANS.	1Y	455KC
IF TUBE	100X	455KC
2nd IF TRANS.	.65X	455KC
AUDIO	40X	400~
OUTPUT	10X	400~

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last rereference mark at low freq. end of dial.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Use an insulated alignment screwdriver for all adjustments.

AM IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1	200 MMFD	High side to Point A Low side to chassis.	455KC	AM(left)	Pointer near middle of dial.	DC probe to Point B Common to chassis	A1,A2, A3,A4.	Adjust for maximum deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
2	.01 MFD	High side to Point A Low side to chassis.	10.7MC (400∿ AM modulation)	FM (right)	Pointer near middle of dial.	DC probe to Point B Common to chassis	A5,A6, A7,A8	Detune A10. Adjust A5, A6, A7 & A8 for maximum deflection. Do not repeat adjustments.
3	.01 MFD	"	"	"	"	"	A9	Adjust for maximum deflection.
4	.01 MFD	"	"	"	"	DC probe to high side vol. control. Common to chassis.	A10	Adjust for zero deflection. Repeat Steps 3 & 4 until no further improvement can be made making Step 4 last adjustment.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use freq. modulated signal 450KC sweep, 60∿ modulation. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
2	.01 MFD	High side to Pin 1 (grid) 12BA6 1st IF Tube (3). Low side to chassis.	10.7MC (freq. modulated)	FM (right)	Pointer near middle of dial.	Vertical input to Point E Ground to chassis.	A9,A6, A8.	Disconnect 5 MFD cap. from Point E. Adjust A9, A6, & A8 for maximum amplitude, symmetry & coincidence of pattern of Fig. 1.
3	.01 MFD	High side to Pin 7 (grid) 12BE6. Low side to chassis.	"	"	"	"	A7,A5	Adjust for maximum amplitude, symmetry & coincidence of pattern per Fig. 1.
4	.01 MFD	High side to Pin 1 (grid) 12BA6 1st IF Tube (3). Low side to chassis.	"	"	"	Vertical input to high side vol. control. Ground to chassis.	A10	Reconnect 5 MFD cap. to Point E Adjust for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 2.

AM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5	200MMFD	High side to AM ext. ant. terminal.(Loop and link connected.) Low side to chassis.	600KC (400∿ amp mod.)	AM	600KC	DC probe to Point A Common to chassis	A11,A12, A13	Adjust for maximum deflection.
6	200MMFD	"	1600KC	"	1600KC	"	A14,A15	Adjust for maximum deflection. Repeat Steps 5 & 6 until no further improvement can be made.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7	2 150Ω carbon res.	Each side in series with 150Ω across FM dipole terminals.	98MC (400∿ amp. mod.)	FM	98MC	DC probe to Point D Common to chassis.	A16, A17, A18.	Adjust for maximum deflection.

FIG. 1

FIG. 2

TEMPLE MODEL G-725

TRADE NAME	Temple, Model G-725
MANUFACTURER	Templetone Radio Mfg. Corp., Garfield Ave., New London, Conn.
TYPE SET	AC Operated Combination Phono-Radio AM-FM Superheterodyne with Loop Antenna
TUBES (SEVEN)	Types, 6SB7Y Converter, 12SG7 1st IF Amp., 12SG7 2nd IF Amp., 7A6 FM Ratio Det., 12SQ7 AM Det.-AVC-AF, (2) 35L6GT Power Output.
POWER SUPPLY	105-125 Volts AC — RATING .42 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1625KC — FREQ. MOD. 87.6-108.4

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

There are 5 calibration marks on dial backplate. Reading from left to right they are end limit, 600KC, 92MC, 106MC & 1550KC. To set pointer turn tuning cap. fully closed and set pointer to end limit reference mark at left end of dial backplate.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Use insulated alignment screwdriver for all adjustments.

AM IF ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to rear AM stator of tuning cap. Low side to chassis.	455KC	BC (clockwise)	Tuning cap. fully open.	Across voice coil	A1,A2, A3	Adjust for maximum output If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

If a VTVM is not available a 20KΩ per volt DC voltmeter may be used as an output indicator.

In Step 3 connect 2 100KΩ resistors in series from Point A to chassis. The values of these two resistors must be within 1% of each other. The junction of these 2 resistors is Point B. (See schematic)

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
2	.01 MFD	High side to Pin 4 (grid) 12SG7 2nd IF Tube (3). Low side to chassis.	10.7MC (unmodulated)	FM (counter clockwise)	Tuning cap. fully open.	DC probe to Point A. Common to chassis	A4	Adjust for maximum deflection.
3	.01 MFD	"	"	"	"	DC probe to Point C. Common to B. (See pre-alignment notes)	A5	Adjust for zero deflection
4	.01 MFD	"	10.4MC	"	"	DC probe to Point A. Common to chassis	A6	Adjust for maximum deflection.
5	.01 MFD	"	11.0MC	"	"	"	A7	Adjust for maximum deflection. Repeat Steps 3, 4 and 5 until no further improvement can be made making Step 3 last adjustment. Disconnect 2 100KΩ resistors.
6	.01 MFD	High side to Pin 4 (grid) 12SG7 1st IF Tube (2). Low side to chassis.	10.7MC	"	"	"	A8,A9	Adjust for maximum deflection.
7	.01 MFD	High side to Pin 8 (grid) 6SB7Y. Low side to chassis.	"	"	"	"	A10,A11	"
8	300Ω carbon resistor	High side to terminal D of ant. terminal strip. Low side to chassis.	92MC	"	92MC reference mark.	"	A12	"
9	"	"	106MC	"	106MC reference mark.	"	A13, A14	Adjust for maximum deflection. Repeat Steps 8 & 9 until no further improvement can be made. Continue with AM RF alignment.

FOR AM-RF AND ALTERNATE FM ALIGNMENT SEE PAGE 4

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DATE 2/48 SET #34 FOLDER #484-23

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TEMPLE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6SB7Y	6SB7Y	8R	
2	1st IF Amp.	12SG7	12SG7	8BK	
3	2nd IF Amp.	12SG7	12SG7	8BK	
4	FM Ratio Det.	7A6	7A6	7AJ	
5	AM Det.-AVC-AF	12SQ7	12SQ7	8Q	
6	Power Output	35L6GT	35L6GT	7AC	
7	Power Output	35L6GT	35L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TEMPLE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
8A	60	150	CE87	DY-604020-150	EL-340	AF838D	UP44415	Filter-Red & Grn.
B	40	150		M-20-150	UT-201	PRS150-20	BR2015	" -Or.
C	40	150						" -Blue
9	5	50	CE88	M-4-450	TA-55	PRS150-4		Stabilizing Cap.
10	.075	600		MPH-6-1	TC-1	684-.1	DT6P1	Line Filter
11	.01	600		S-6-01	TC-11	684-01	DT6S1	Filament Bypass
12	.25	400		S-4-25	TC-2	484-.25	DT4P25	RF Bypass Power Supply*
13	.01	600		S-6-01	TC-11	684-01	DT6S1	Output Plate Bypass
14	.01	600		S-6-01	TC-11	684-01	DT6S1	Audio Coupling
15	.005	400		S-6-005	TC-25	484-005	DT6D5	" "
16	.01	600		S-6-01	TC-11	684-01	DT6S1	RF Bypass
17	.003	600		S-6-003	TC-23	684-003	DT6D3	Tone Comp.
18	.003	600		S-6-003	TC-23	684-003	DT6D3	Tone Comp.
19	.1	400		S-4-1	TC-1	484-.1	DT4P1	RF Bypass Pwr. Supply
20	.01	600		S-6-01	TC-11	684-01	DT6S1	1st IF Decoupling
21	.05	400		S-4-05	TC-15	484-05	DT4S5	Conv. Decoupling
22	.1	400		S-4-1	TC-1	484-.1	DT4P1	AVC Filter
23	.01	600		S-6-01	TC-11	684-01	DT6S1	Ext. Ground Isolation
24	.25	600						Phono Isolation
25A	.1							Phono Motor Filter
B	.1							" " "
26	100			MO.5-31	1FM-31	1468-0001	5W5T1	Output Grid Bypass
27	22			MO.5-425	1FM-425	1468-000025	5W5Q25	IF Coupling
28	2200							Fixed Trimmer
29	220			MO.5-325	1FM-325	1468-00025	5W5T25	Diode RF Filter
30	470			MO.5-35	1FM-35	1468-0005	5W5T5	Tone Comp.
31	1000			MO.3-21	1FM-21	1468-001	1W5D1	Diode Load Cap.
32	100			MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.
33	220			MO.5-325	1FM-325	1468-00025	5W5T25	Filament Bypass
34	220			MO.5-325	1FM-325	1468-00025	5W5T25	RF Bypass
35	33							Fixed Padder
36	10			MO.5-41	1FM-41	1468-00001	5W5Q1	RF Coupling
37	820							RF Bypass
38	100			MO.5-31	1FM-31	1468-0001	5W5T1	Fixed Trimmer
39	33			MO.5-43	MS-43	1468-00004	5W5Q3	RF Coupling
40	470			MO.5-45	1FM-35	1468-0005	5W5T5	Conv. Screen Bypass

*Not used in all models.

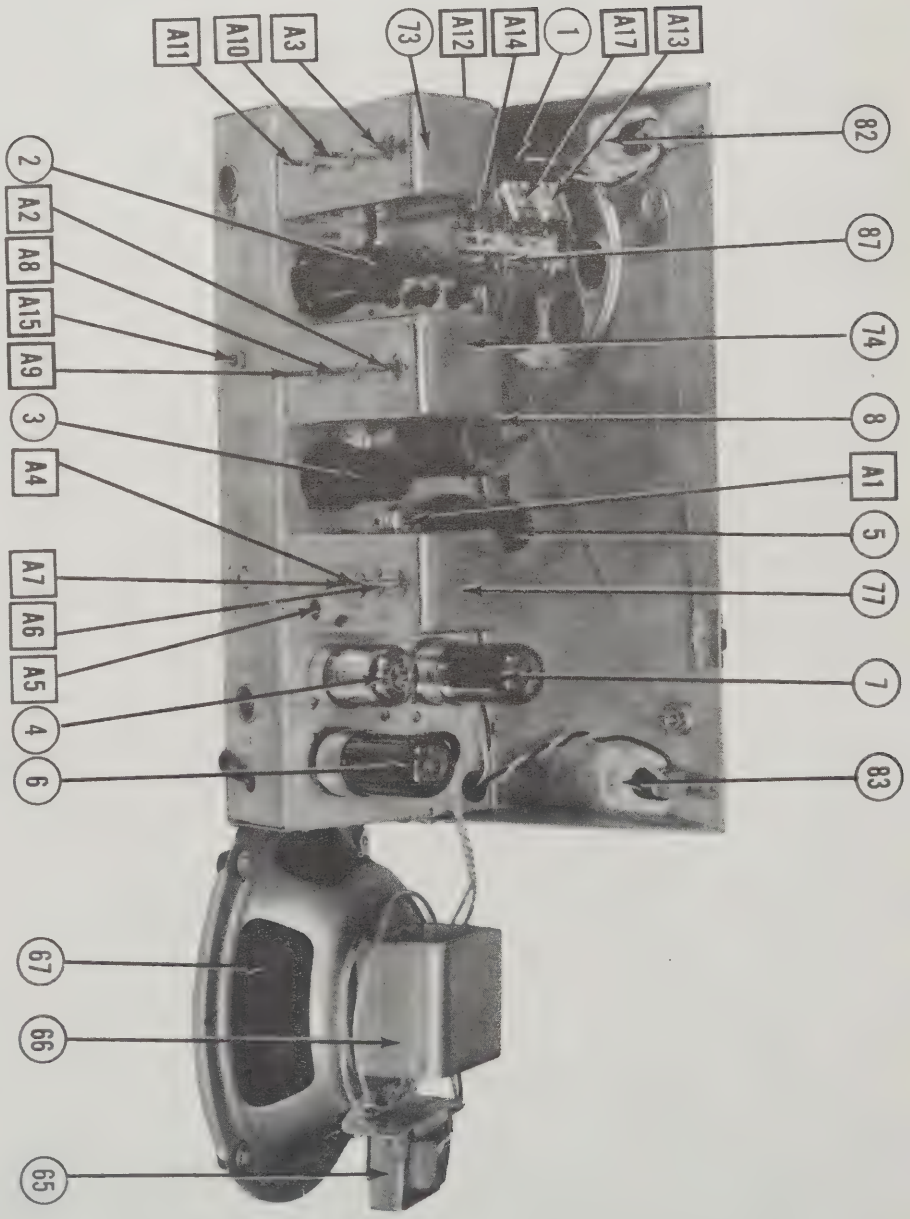
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	MALLORY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
41	1 Meg.	½	RP11-105A				Volume Control tapped @ 150KΩ & 300KΩ

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TEMPLE PART No.	IRC PART No.	IDENTIFICATION CODES
42	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
43	330Ω	½		BW-½-330	Or.-Or.-Br. Decoupling
44	1 Meg.	½		BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
45	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. Diode Load
46	220KΩ	½		BTS-220K	Red-Red-Yl. Diode RF Filter
47	22KΩ	½		BTS-22K	Red-Red-Or. Ratio Detector Diode Load

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	TEMPLE PART No.	IRC PART No.	
48	4.7 Meg.	½		BTS-4.7 Meg.	Yl.-Vl.-Grn. AF Grid
49	330KΩ	½		BTS-330K	Or.-Or.-Yl. AF Plate Load
50	330KΩ	½		BTS-330K	Or.-Or.-Yl. Output Grid
51	47Ω	1		BW-1-47	Yl.-Vl.-Blk. Output Cathode
52	47Ω	½		Lw-g-47	Yl.-Vl.-Blk. Parasitic Suppressor
53	680KΩ	½		BTS-680K	Blue-Gray-Yl. Phono Shunt
54	470KΩ	½		BTS-470K	Yl.-Vl.-Yl. Series Phono
55	47KΩ	½		BTS-47K	Yl.-Vl.-Or. Tone Compensation
56	22KΩ	½		BTS-22K	Red-Red-Or. Tone Compensation
57	6dKΩ	½		BTS-68K	Blue-Gray-Or. Tone Compensation
58	330Ω	½		Bw-g-330	Or.-Or.-Br. Filter
59	110Ω	2		BW-2-120	Br.-Br.-Br. "
60	12Ω	1		BW-1-12	Br.-Red-Blk. Surge Limiter
61	68Ω	2		BW-2-68	Blue-Gray-Blk. Filament Shunt
62	150Ω	½		Bw-g-150	Br.-Grn.-Br. Filament Shunt-See Note
63	68Ω	1		BW-1-68	Blue-Gray-Blk. Filament Shunt-See Note
64	150Ω	½		BW-g-150	Br.-Grn.-Br. 2nd IF Screen Decoupling-See te

Note-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TEMPLE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
65	12000Ω	4.3Ω	50Ω	.6Ω	Part of EH-18		T22887		

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TEMPLE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.		ST-117		
66	PM	4.3Ω	EH-18	Mod. P8-T		
	CONE DIA.	VC DIA.				
67	7"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

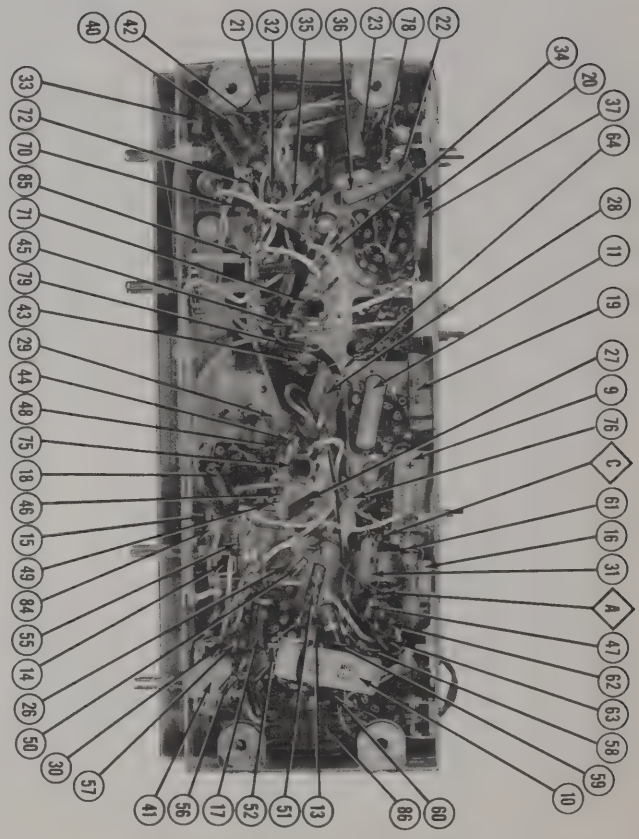
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	TEMPLE PART No.	MEISSNER PART No.	
68	FM Ant.					
69	BC Ant.Coil	19Ω	2.2Ω	LR24		
70	FM " "		0Ω	LR17		
71	AM Osc. "	.5Ω	4.3Ω	LO14		
72	FM Osc. "		0Ω	LO13		
73A	Input IF AM	.1Ω	INF.	TM6		
B	" " FM	.8Ω				
74A	Output IFAM	.8Ω†		TM15		†Includes both primaries
B	Output IFFM					
75	IF Coil		.8Ω	TM14		
76	FM IF Plate Choke		2.1Ω	LF9		
77	Ratio Det.		.2Ω	TM5		
78	Wave Trap		0Ω	LF8		
79	" "		0Ω	LF8		
80	RF Choke		0Ω			
81	RF Choke		0Ω			

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					TEMPLE PART No.		
82	Screw	120V					Type C-7
83	"	120V					" "

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	TEMPLE PART No.	NOTES
84	Switch	SR27	RADIO-PHONO-TONE
85		SR30	Band
86	Rectifier	ED6	Selenium
87	Tuning Gang	CV15-2	AM (30-427MMF, 30-427MMF)
	Dial Scale	ND51	
	Dial Pointer	NP7-2	

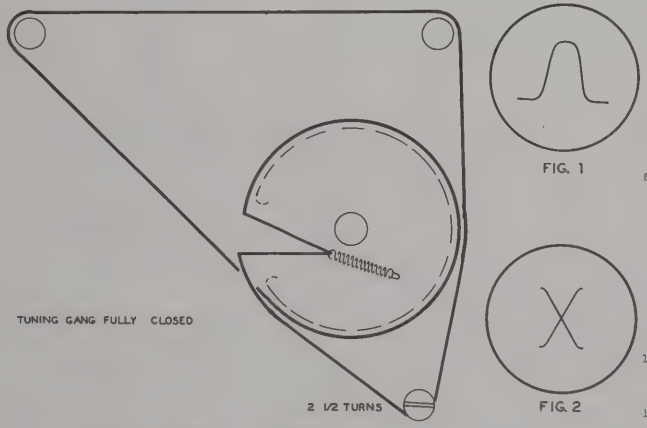


FIG. 1

FIG. 2

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal 450KC sweep with 60~ modulation except in Step 3 where 225KC sweep is used. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
2	.01 MFD	High side to Pin 4 (grid) 12SG7 1st IF Tube (2). Low side to chassis.	10.7MC (freq. modulated	FM (counter clock-wise)	Tuning cap. fully open.	Vertical input to Point A. Ground to chassis.	A4,A8, A9	Disconnect 5 MFD cap. from Point A. Adjust A4, A8, A9 for maximum amplitude, symmetry and coincidence of pattern per Figure 1.
3	.01 MFD	High side to Pin 6 (grid) 6SB7Y. Low side to chassis.	"	"	"	"	A10,A11	Adjust for maximum amplitude, symmetry & coincidence of pattern per Figure 1.
4	.01 MFD	High side to Pin 4 (grid) 12SG7 1st IF Tube (2). Low side to chassis.	10.7MC (freq. modulated 225KC sweep)	"	"	Vertical input to Point C. Ground to chassis.	A5,A6, A7	Reconnect 5 MFD cap. to Point A. Alternately adjust A6 & A7 for peaks occurring about 200KC from center of pattern and A5 for maximum straightness of crossover lines with crossover occuring at center of pattern per Fig. 2.
5	300Ω carbon res.	High side to terminal D of ant. terminal strip. Low side to chassis.	92MC	"	92MC reference mark	Vertical input to Point A. Ground to chassis.	A12	Disconnect 5 MFD cap. from Point A. Adjust A12 for coincidence of pattern per Fig. 1.
6	"	"	106MC	"	106MC reference mark.	"	A13, A14	Adjust A13 for coincidence, adjust A14 for maximum amplitude of pattern per Fig. 1. Repeat Steps 5 & 6 until no further improvement can be made. Reconnect 5 MFD cap. to Point A and continue with Am RF Alignment.

AM RF ALIGNMENT

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
10	100MMFD	High side to terminal A on ext. ant. terminal board. Low side to chassis.	600KC	BC	600KC reference mark	across voice coil	A15, A16	Adjust for maximum output
11	100MMFD	"	1550KC	"	1550KC reference mark	"	A17, A18	Adjust for maximum output. Repeat Steps 10 & 11 until no further improvement can be made.

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.
‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SB7Y	0V.	0V.	92VDC	92VDC	-15.7VDC§	0V.	5.4VAC	-.4VDC
2	12SG7	0V.	32VAC	0V.	-.5VDC	0V.	86VDC	45VAC	86VDC
‡ 3	12SG7	0V.	17VAC	0V.	-.7VDC	0V.	92VDC	32VAC	95VDC
‡ 4	7A6	14VAC	0V.	-.05VDC	0V.	0v.	0V.	-.05VDC	17VAC
5	12SQ7	0V.	-1.6VDC	0V.	0V.	-1VDC	55VDC	14VAC	0V.
6	35L6GT	6VDC	112VAC	100VDC	85VDC	0V.	0V.	80VAC	6VDC
7	35L6GT	6VDC	80VAC	100VDC	85VDC	0V.	0V.	45VAC	6VDC

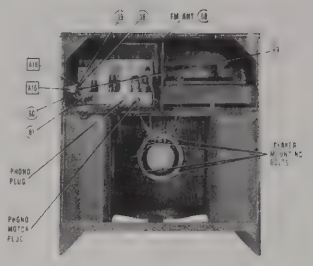
§TAKEN WITH VACUUM TUBE VOLTMETER.

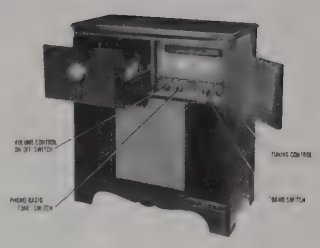
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SB7Y	0Ω	0Ω	100KΩ	100KΩ	22KΩ	.4Ω	5Ω	1.5 Meg.
2	12SG7	0Ω	28.5Ω	0Ω	2 Meg.	0Ω	100KΩ	40Ω	100KΩ
‡ 3	12SG7	0Ω	18Ω	0Ω	320KΩ	0Ω	100KΩ	23.5Ω	100KΩ
‡ 4	7A6	12Ω	0Ω	800KΩ	INF.	0Ω	22KΩ	800KΩ	18Ω
5	12SQ7	0Ω	5 Meg.	0Ω	0Ω	2.5 Meg.	400KΩ	12Ω	0Ω
6	35L6	44Ω	90Ω	100KΩ	100KΩ	300KΩ	300KΩ	65Ω	44Ω
7	35L6GT	44Ω	65Ω	100KΩ	100KΩ	300KΩ	300KΩ	40Ω	44Ω

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

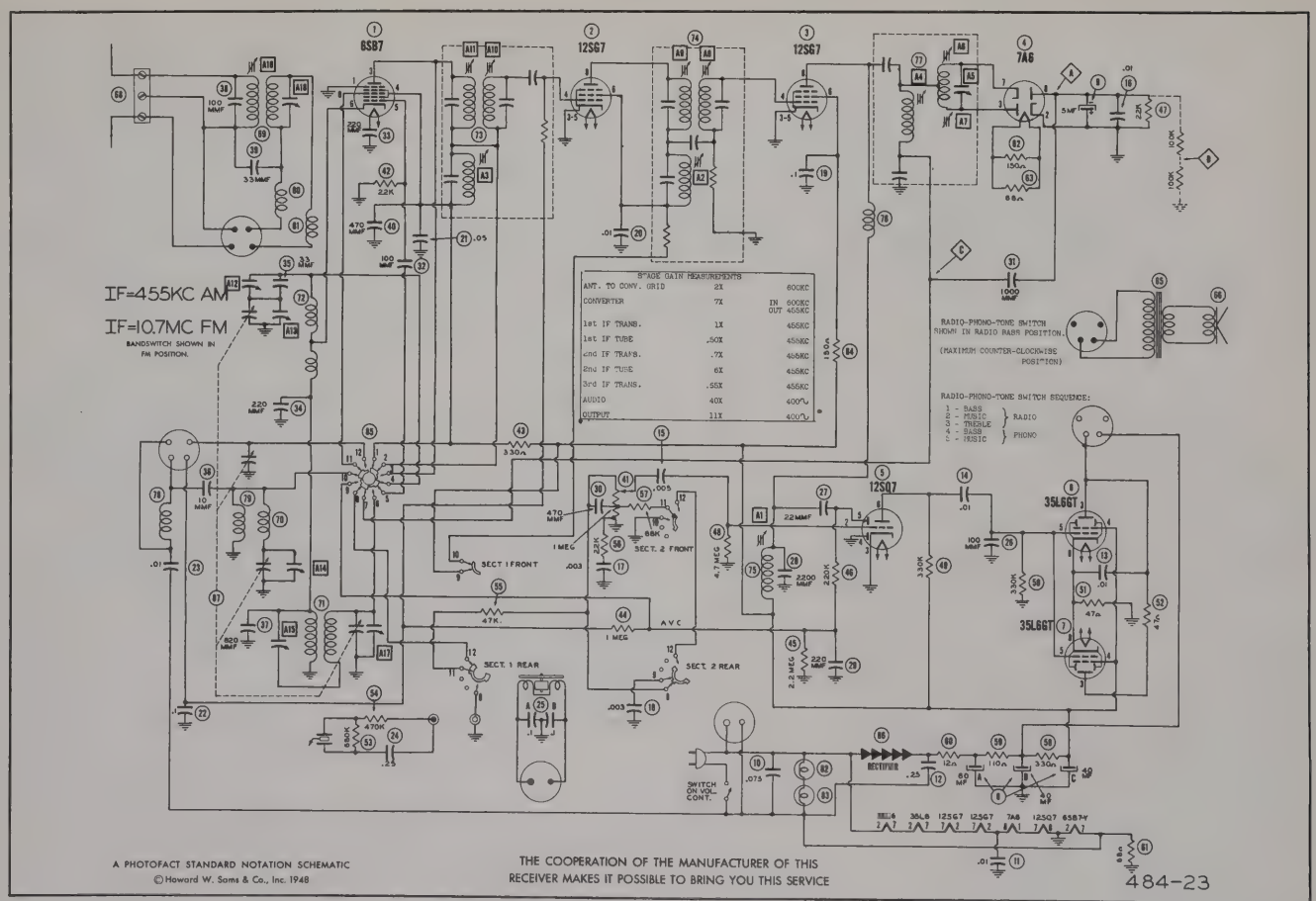




DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove speaker plug from chassis.
3. Remove phono-motor plug from chassis.
4. Remove phono-pickup plug from chassis.
5. Remove antenna plug from chassis.
6. Remove the four chassis mounting screws. Remove chassis from cabinet.
7. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.

DATE 2/48 SET #34 FOLDER #484-23



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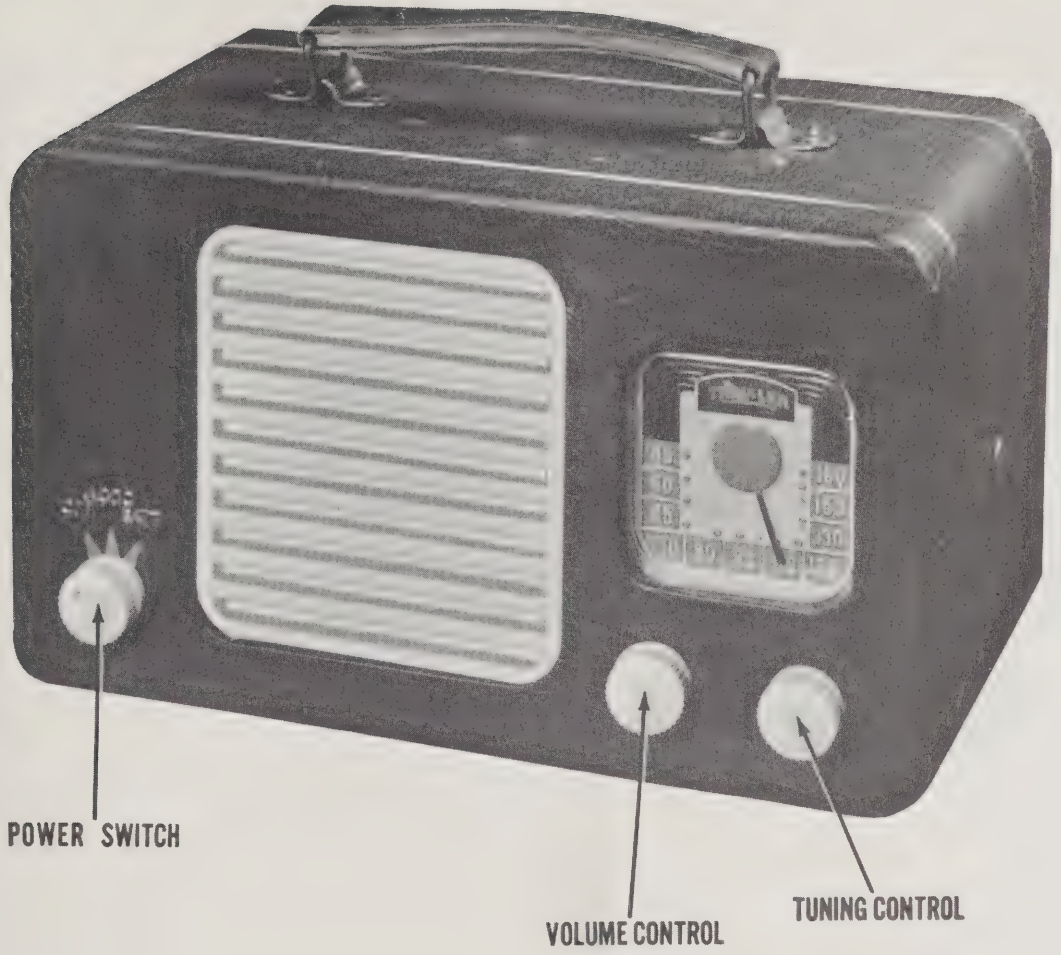
484-23

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

TRAV-LER MODEL 5028
BATTERY-LINE OPERATED



TRAV-LER MODEL 5028
BATTERY-LINE OPERATED

TRAV-LER MODEL 5028

TRADE NAME	Trav-ler, Model 5028
MANUFACTURER	Trav-ler Radio & Tel. Corp., 571 W. Jackson, Chicago, Ill.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 1R5 Converter, 1U4 IF Amp., 1S5 Det.-AVC-AF, 3S4 Power Output, 117Z3 Rectifier.
POWER SUPPLY	110-125 Volts AC-DC or 3 Volts "A" Supply and 67.5 Volts "B" Supply
RATING	.15 Amp. @ 117 Volts AC or 136MA @ 3 Volts DC and 13.2MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer parallel with base of dial. Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy ant. to 200 MMF to reduce hum modulation.
2	.1 MFD.	"	1650KC	"	"	A5	Adjust for maximum output. Reassemble in cabinet.
3		Wrap one turn of high side of sig. gen. around outside of cabinet.	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output. A6 is accessible by removing plug button in end of cabinet.

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DATE 2/47 SET #34 FOLDER #484-24

PARTS LIST AND DESCRIPTIONS

TRAV-LER MODEL 5028
BATTERY-LINE OPERATED

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	1R5	1R5	7AT	
2	IF Amp.	1U4	1U4	6AR	
3	Det.-AVC-AF	1S5	1S5	6AU	
4	Power Output	3S4	3S4	7BA	
5	Rectifier	117Z3	117Z3	4BR	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAV-LER PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
6A	40	150	EC-14	DY-3x40-150	TA-440			Filter - Red
B	40	150			UT-121			" - Blue
C	20	150						" - Yl.
7	70	10	EC-6	M-100-12	UHC-112		BRH121	Fil. Bypass
8	.05	600	PC-5	MPH-6-05	TC-15	684-05	DT6S5	Line Filter
9	.005	600	PC-6	S-6-005	TC-25	684-005	DT6D5	Output Plate Bypass
10	.005	600	PC-6	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
11	.01	400	PC-7	S-4-01	TC-11	484-01	DT4S1	AF Screen Bypass
12	.005	600	PC-6	S-6-005	TC-25	684-005	DT6D5	Audio Coupling
13	.01	200	PC-7	S-4-01	TC-11	484-01	DT2S1	IF Grid Filter
14	.1	200	PC-3	S-2-1	TC-1	484-.1	DT2P1	Fil. Bypass
15	.05	600	PC-5	S-6-05	TC-15	684-05	DT6S5	AVC Filter
16	.01	200	PC-7	S-4-01	TC-11	484-01	DT2S1	Decoupling
17	.1	400	PC-8	S-4-1	TC-1	484-.1	DT4P1	Line Isolation
18	100		MC-2	MO.5-31	1FM-31	1468-0001	5W5T1	AF Plate Bypass
19	100		MC-2	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
20	100		MC-2	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.

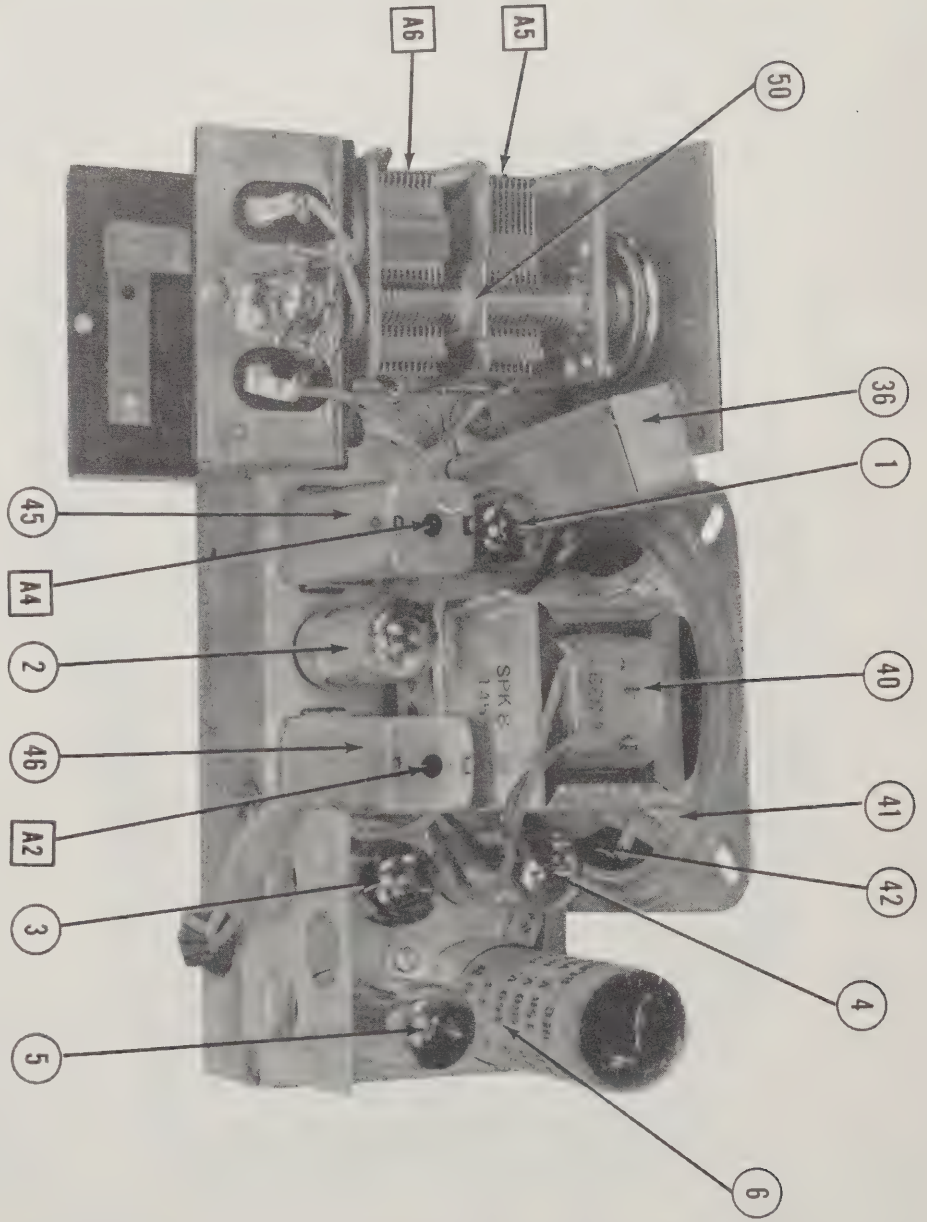
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
21	1 Meg.	½	VC-11			Volume Control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	IDENTIFICATION CODES
22	220KΩ	½	1R-20	BTS-220K	Red-Red-Yl. Oscillator Grid
23	3.3 Meg.	½	1R-23	BTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
24	220KΩ	½	1R-20	BTS-220K	Red-Red-Yl. Line Isolation
25	10 Meg.	½	1R-3	BTS-10 Meg.	Br.-Blk.-Blue IF Grid
26	82KΩ	½	1R-31	BTS-82K	Gray-Red-Or. Diode RF Grid
27	10 Meg.	½	1R-3	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
28	3.3 Meg.	½	1R-23	BTS-3.3 Meg.	Or.-Or.-Grn. AF Screen Dropping
29	1 Meg.	½	1R-12	BTS-1 Meg.	Br.-Blk.-Grn. AF Plate Load
30	2.2 Meg.	½	1R-13	BTS-2.2 Meg.	Red-Red-Grn. Output Grid
31	270Ω	½	1R-33	BW-½-270	Red-Vi.-Br. Bias
32	620Ω	½	1R-39	BTS-560	Blue-Red-Br. Filament String
33	270Ω	½	1R-33	BW-½-270	Red-Vi.-Br. Filament String
34	33Ω	½	1R-17	BW-½-33	Or.-Or.-Blk. Filament Dropping
35	470Ω	½	1R-1	BTS-470	Yl.-Vi.-Br. Filament String
36A	1050Ω	5	WR-7	AB-1000	Filament Dropping
B	1050Ω			AB-1000	" "
37	3900Ω	1	1R-40	BTA-3900	Or.-White-Red Filter
38	33Ω	½	1R-17	BW-½-33	Or.-Or.-Blk. Rectifier Ballast
39	10KΩ	½	1R-37	BTS-10K	Br.-Blk.-Or. Screen Decoupling

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRAV-LER PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
40	3700Ω	3.2Ω	410Ω	.7Ω	Part of SPK-8	A-3876*	T22846*	A-2900*	*Bend mounting tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRAV-LER PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	VC IMP.				
41	PM	3.2Ω	SPK-8			
	CONE DIA.	VC DIA.				
42	3-7/16"	1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

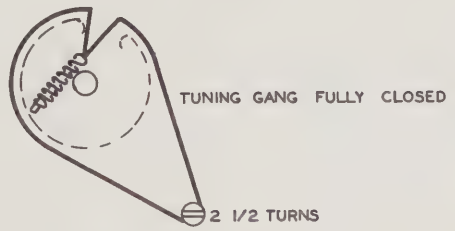
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.
43	Loop Ant.		1.9Ω	LL14	
44	Osc. Coil	.3Ω	1Ω	LO8	14-1040
45	Input IF	22Ω	22Ω	LI5	16-6668
46	Output IF	22Ω	22Ω	LI5	16-6669

BATTERIES

ITEM No.	VOLTAGE	TRAV-LER PART No.	EVEREADY			INSTALLATION NOTES
			"A"	"B"	"A-B"	
47	3V "A"		#950	#467		2 Used in series
48	67.5V "B"					

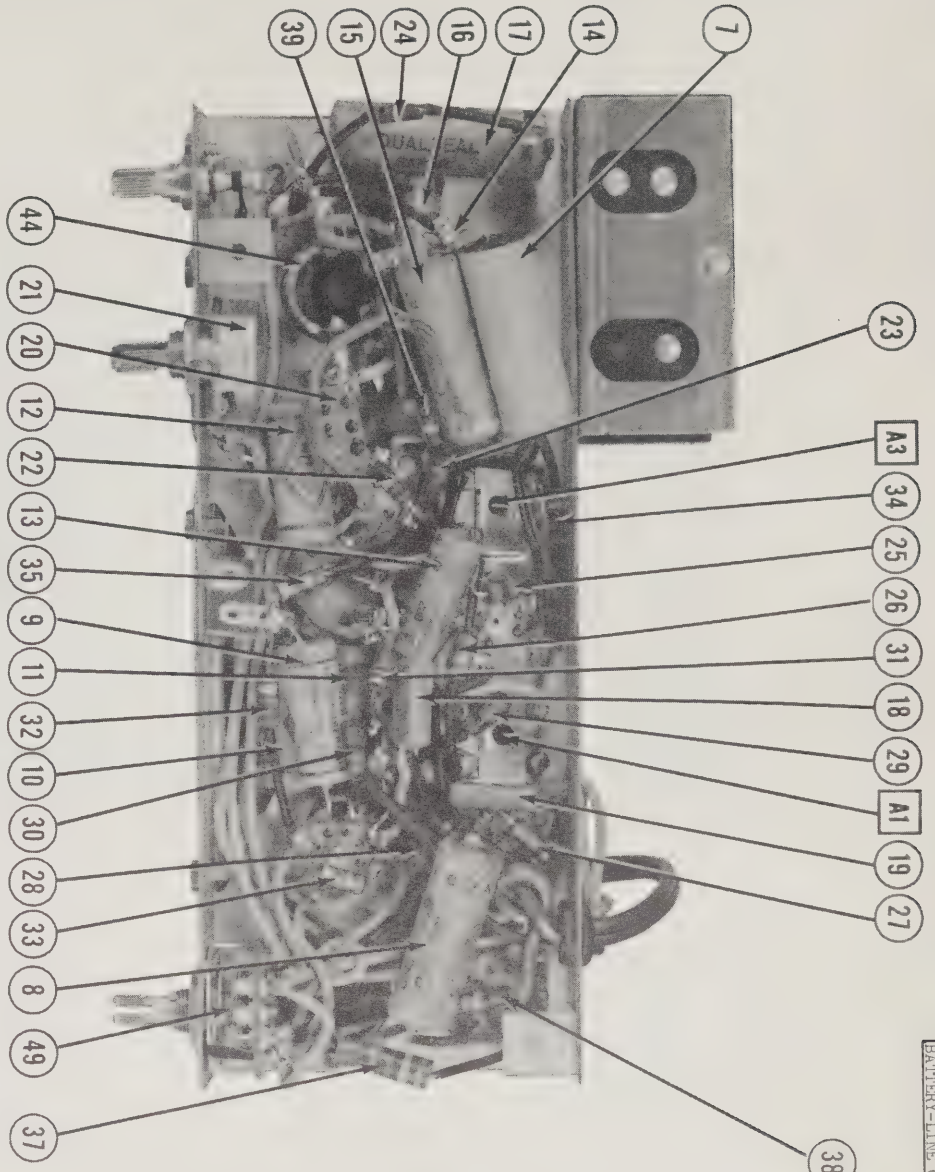
MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
49	Switch	SW-8	On-off, AC-DC, Batt.
50	2 Gang Var. Cap.	GC-6X	(17-457MMF, 33-200MMF)
A5	Trimmer	G-4	Osc. Adj.
A6	"	G-1	Ant. Adj.



DIAL CORD DRIVE

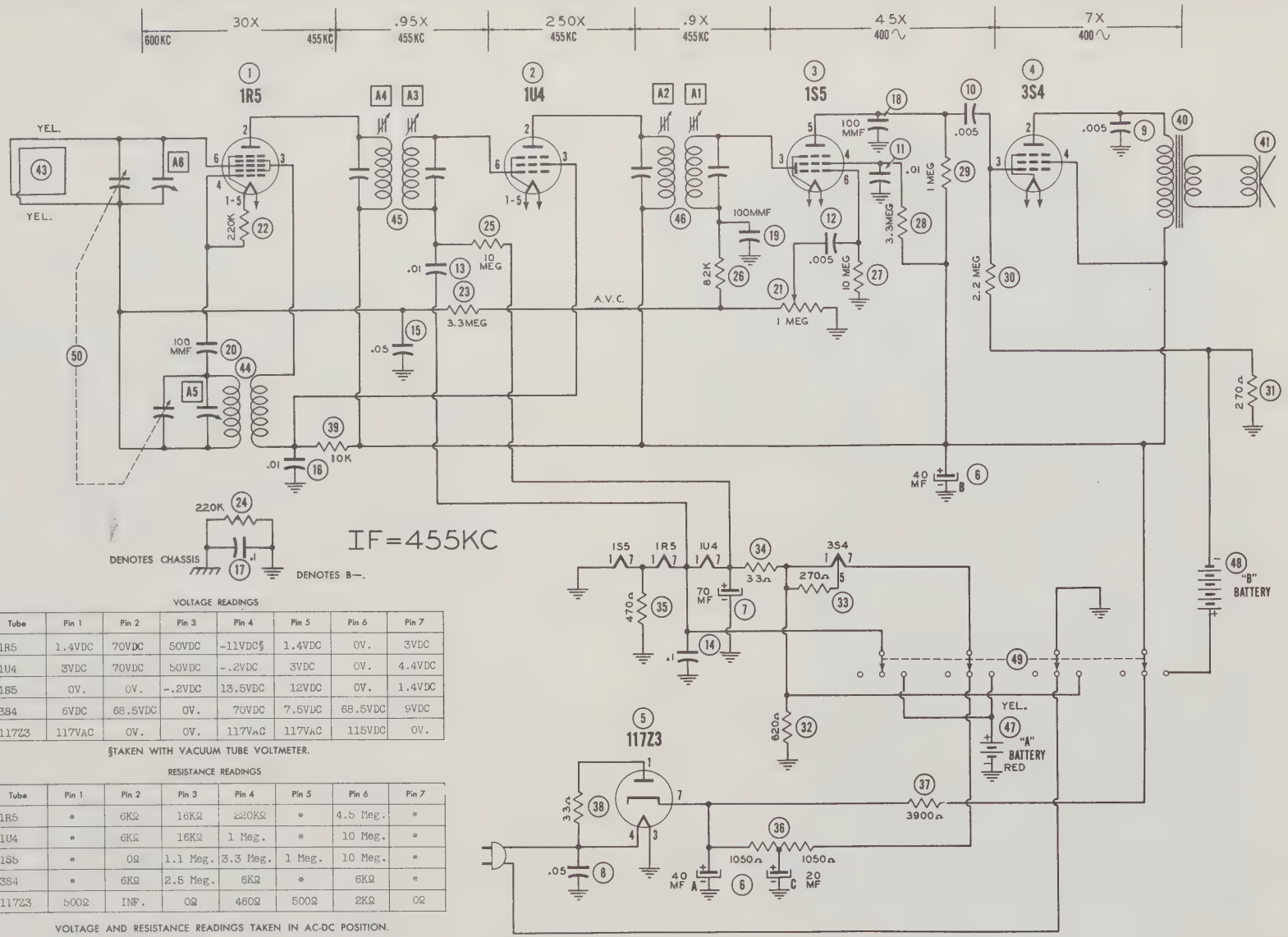
CHASSIS—BOTTOM VIEW



DATE 2/47 SET #34 FOLDER #464-24

TRAV-LER MODEL 5028 BATTERY-LINE OPERATED

TRAV-LER MODEL 5028 BATTERY-LINE OPERATED



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	1.4VDC	70VDC	50VDC	-11VDC§	1.4VDC	0V.	3VDC
2	1U4	3VDC	70VDC	50VDC	-.2VDC	3VDC	0V.	4.4VDC
3	1S5	0V.	0V.	-.2VDC	13.5VDC	12VDC	0V.	1.4VDC
4	3S4	6VDC	68.5VDC	0V.	70VDC	7.5VDC	68.5VDC	9VDC
5	117Z3	117VAC	0V.	0V.	117VAC	117VAC	115VDC	0V.

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	1R5	*	6KΩ	16KΩ	220KΩ	*	4.5 Meg.	*
2	1U4	*	6KΩ	16KΩ	1 Meg.	*	10 Meg.	*
3	1S5	*	0Ω	1.1 Meg.	3.3 Meg.	1 Meg.	10 Meg.	*
4	3S4	*	6KΩ	2.5 Meg.	6KΩ	*	6KΩ	*
5	117Z3	500Ω	INF.	0Ω	460Ω	500Ω	2KΩ	0Ω

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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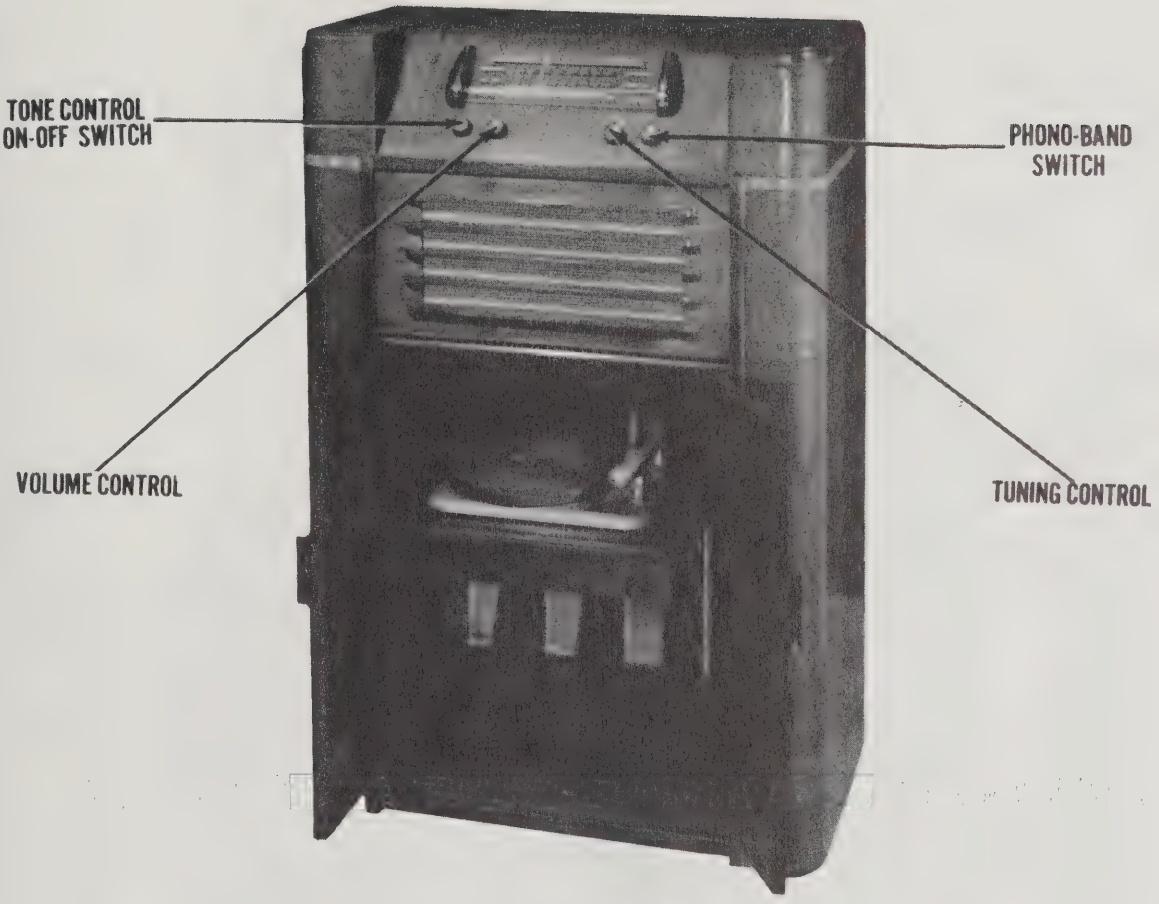
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting AVC to B-.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

TRUETONE MODEL
D1752 (Fact. #7901-14)



TRUETONE MODEL
D1752 (Fact. #7901-14)

TRUETONE MODEL D1752

TRADE NAME	Truetone, Model D1752 (Factory Model #7901-14)
MANUFACTURER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC Operated Combination Phono-Radio AM-FM Superheterodyne Receiver with Loop Ant.
TUBES (EIGHT)	Types, 6BA6 RF Amp., 6BE6 Converter, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6SQ7 AM Det.-AVC-AF, 6H6 FM Det., 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC
RATING	.80 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	535-1620KC FREQ. MOD. 87.25-108.75MC

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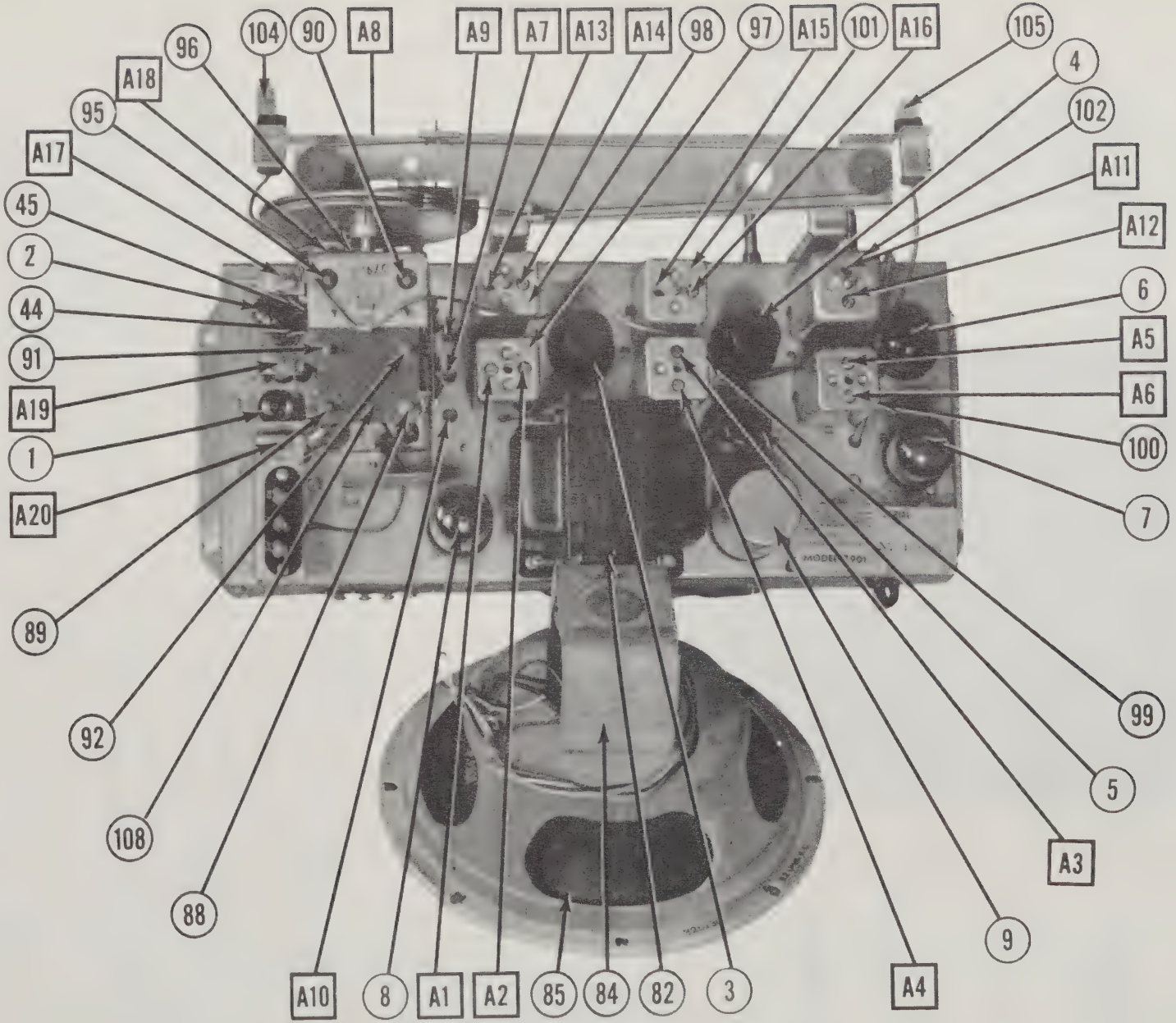
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A8
A9
A7
A13
A14
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A15
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A16
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A18
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2
44
91
A19
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A20
89
92
108
88
A10
8
A1
A2
85
84
82
3
A4
9
A3
5
99
7
100
A6
A5
6
A12
A11
102
4

TRUETONE MODEL
D1752 (Fact. #7901-14) PAGE 3

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	RF Amp.	6BA6	6BA6	7BK	
2	Converter	6BE6	6BE6	7CH	
3	1st IF Amp.	6SG7	6SG7	8BK	
4	2nd IF Amp.	6SG7	6SG7	8BK	
5	AM Det.-AVC-AF	6SQ7	6SQ7	8Q	
6	FM Det.	6H6	6H6	7Q	
7	Power Output	6V6GT	6V6GT	7AC	
8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	30	400	A-57950	DY-403	EL-424	AF862J4A	UP43145C	▲ Filter
B	30	400						■ "
C	15	400						▲ "
D	20	25						Cathode Bypass
10	4	150	B-55520-1	M-4-450	UT-41	PRS150-4	BR415	Stabilizing Cap.
11	.05	400	BC31B503	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
12	.01	600	BD610103	S-6-01	TC-11	684-01	DT6S1	Output Plate Bypass
13	.005	600	BD610502	S-6-005	TC-25	684-005	DT6D5	Tone Comp.
14	.05	400	BD410503	S-4-05	TC-15	484-05	DT4S5	Audio Coupling
15	.01	600	BD610103	S-6-01	TC-11	684-01	DT6S1	" "
16	.01	600	BD610103	S-6-01	TC-11	684-01	DT6S1	Tone Comp.
17	.02	400	BD410203	S-4-02	TC-12	484-02	DT4S2	Audio Coupling
18	.001	600	BD610102	S-6-001	TC-21	684-001	DT6D1	Tone Compensation
19	.001	600	BD610102	S-6-001	TC-21	684-001	DT6D1	De-emphasis
20	.1	400	BD410104	S-4-1	TC-1	484-.1	DT4P1	2nd IF Plate Decoupling
21	.02	400	BD410203	S-4-02	TC-12	484-02	DT4S2	2nd IF Screen Bypass
22	.02	400	BD410203	S-4-02	TC-12	484-02	DT4S2	2nd IF Cathode Bypass
23	.1	400	BD410104	S-4-1	TC-1	484-.1	DT4P1	2nd IF Plate Decoupling
24	.02	400	BD410203	S-4-02	TC-12	484-02	DT4S2	2nd IF Screen Bypass
25	.02	400	BD410203	S-4-02	TC-12	484-02	DT4S2	2nd IF Screen Bypass
26	.05	200	BD210503	S-4-05	TC-15	484-05	DT2S5	AVC Filter
27	.1	400	BD410104	S-4-1	TC-1	484-.1	DT4P1	Conv. Plate Decoupling
28	.1	200	BD210104	S-2-1	TC-1	484-.1	DT2P1	AVC Filter
29	150	500	BM74A151	MO.5-315	1FM-315	1468-00015	5W5T15	AF Plate Bypass
30	56	500	B-58902-11					Diode Load Cap.
31	330	500	BM64A331	MO.5-33	1FM-33	1468-0003	5W5T3	2nd IF Plate Decoupling
32	330	500	BM64A331	MO.5-33	1FM-33	1468-0003	5W5T3	RF Bypass
33	330	500	BM64A331	MO.5-33	1FM-33	1468-0003	5W5T3	1st IF Plate Decoupling
34	330	500	BM64A331	MO.5-33	1FM-33	1468-0003	5W5T3	RF Bypass
35	330	500	BM64A331	MO.5-33	1FM-33	1468-0003	5W5T3	Conv. Plate Decoup.
36	47	300	B-58800-27	MO.5-45	1FM-45	1468-00005	5W5Q5	Osc. Grid Cap.-Cer.
37	5000	300	B-58802-11	MW.5-25	1FM-25	1467-005	1D5D5	Osc. Feedback-Cer.
38	1000	300	BM74A102	MW.5-21	1FM-21	1467-001	1W5D1	Fixed Padder
39	47	500	B-58900-6	MO.5-45	1FM-45	1468-00005	5W5Q5	RF Coupling
40	220	500	BM74A221	MO.5-325	1FM-325	1468-00025	5W5T25	" "
41	1000	300	BM74A102	MW.5-21	1FM-21	1467-001	1W5D1	RF Screen Bypass
42	100	300	BM74A101	MO.5-31	1FM-31	1468-0001	5W5T1	RF Cathode Bypass-Cer.
43	1000	300	BM64A911	MW.5-21	1FM-21	1467-001	1W5D1	Osc. Feedback
44	15	300	B-58803-16		MS-415			Fixed Trimmer
45	20	300		MOS.5-42	MS-42		5R5Q2	Osc. Feedback
46	100	500	B-58801-18	MO.5-31	1F.-31	1468-0001	5W5T1	RF Coupling

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
47	2 Meg.	½	B-58218-1			Volume Control tapped @ 300KΩ
48A	1 Meg.	½	B-58219-1	D11-137	AM-61-S	Tone Control
B	Shaft		Not Req.	E	KSS-3	Attach to 48A per instructions
C	Switch		" "	41	SW-A	" " " " "

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
49	220KΩ	½	BR17B224	BTS-220K	Red-Red-Yl. RF Grid
50	47Ω	½	BR16B470	BW-½-47	Yl.-Vi.-Blk. RF Cathode
51	33KΩ	½	BR17B333	BTS-33K	Or.-Or.-Or. RF Screen Dropping
52	2200Ω	½	BR17B222	BTS-2200	Red-Red-Red AM RF Plate Load
53	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. Converter Screen Dropping
54	6800Ω	1	BR16E682	BTA-6800	Blue-Gray-Red Decoupling
55	12KΩ	1	BR16E123	BTA-12K	Br.-Red-Or. Converter Screen Dropping
56	2200Ω	½	BR17B222	BTS-2200	Red-Red-Red Converter Plate Decoupling
57	220KΩ	½	BR17B224	BTS-220K	Red-Red-Yl. Converter Grid
58	22KΩ	½	BR17B223	BTS-22K	Red-Red-Or. Oscillator Grid
59	56Ω	½	BR16B560	BW-½-56	Grn.-Blue-Blk. 1st IF Cathode
60	33KΩ	½	BR17B333	BTS-33K	Or.-Or.-Or. 1st IF Screen Dropping
61	2200Ω	½	BR17B222	BTS-2200	Red-Red-Red 1st IF Plate Decoupling
62	1 Meg.	½	BR17B105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
63	56Ω	½	BR16B560	BW-½-56	Grn.-Blue-Blk. 2nd IF Cathode
64	47KΩ	1		BTA-47K	Yl.-Vi.-Or. 2nd IF Screen Dropping-See Note
65	2200Ω	½	BR17B220	BTS-2200	Red-Red-Red 2nd IF Plate Decoupling
66	47KΩ	½	BR17B473	BTS-47K	Yl.-Vi.-Or. De-emphasis
67	15KΩ	½	BR17B153	BTS-15K	Br.-Grn.-Or. Ratio Detector Diode Load
68	15KΩ	½	BR17B153	BTS-15K	Br.-Grn.-Or. Ratio Detector Diode Load
69	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. AVC Network
70	1 Meg.	½	BR17B105	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
71	1 Meg.	½	BR17B105	BTS-1 Meg.	Br.-Blk.-Grn. Diode Load
72	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Diode Load
73	220KΩ	½	BR17B224	BTS-220K	Red-Red-Yl. Series Phono
74	220KΩ	½	BR17B224	BTS-220K	Red-Red-Yl. Tone Compensation
75	33KΩ	½	BR17B333	BTS-33K	Or.-Or.-Or. " "
76	6.8 Meg.	½	BR17B685	BTS-6.8 Meg.	Blue-Gray-Grn. AF Grid
77	330KΩ	½	BR17B334	BTS-330K	Or.-Or.-Yl. AF Plate Load
78	470KΩ	½	BR17B474	BTS-470K	Yl.-Vi.-Yl. Output Grid
79	100KΩ	½	BR17B104	BTS-100K	Br.-Blk.-Yl. Output Grid
80	270Ω	1	BR16E271	BW-1-270	Red-Vi.-Br. Output Cathode
81	10KΩ	1	BR17E103	BTA-10K	Br.-Blk.-Or. Tone Compensation

Note-Some models use 33KΩ in this application. Replacement same as #51.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
82	117V AC @ .8A	660V CT @ .123A	5.1V AC @ 2.0A	6.4V AC @ 2.7A	C-57934	P-6013†	T22R05†	

†Use universal mounting brackets.

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	INSTALLATION NOTES
83	4400Ω	3.6Ω	490Ω	.8Ω	B-57997-1	A-3849	T22S87	A-2902	

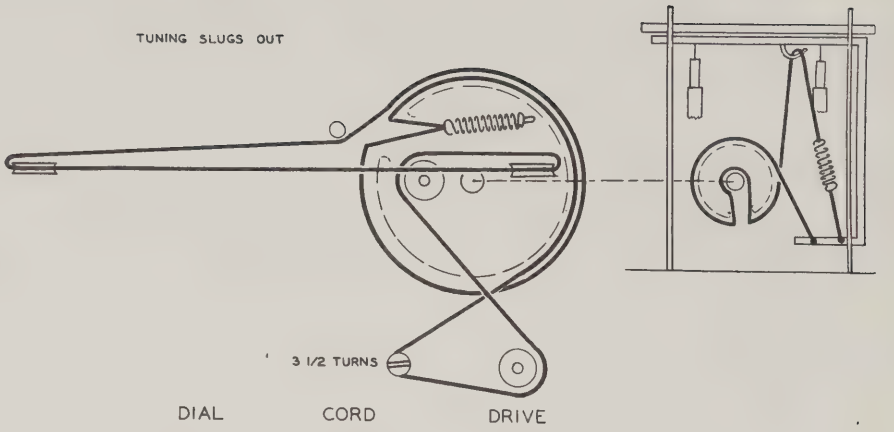
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD RES.	VC IMP.				
84	480Ω	3.6Ω	C-59310			
	CONE DIA.	VC DIA.				
85	7-3/4"	1"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA TRUETONE PART No.	REPLACEMENT DATA MEISSNER PART No.	
86	BC Loop Ant.	.1Ω	.8Ω			
87	FM Dip. "		0Ω			
88	AM Ant.Coil		23.5Ω			Items 88, 89, 90, 91, 92, 95, 96 are part of tuner.
89	FM " "		.1Ω			
90	AM RF "		10.8Ω			
91	FM RF "		0Ω			
92	AM Osc. "		4.5Ω			
93	BC Osc. Trkg. Coil		1.2Ω	B57933		
94	BC Osc. Trkg. Shunt Coil		4.3Ω	B57929		
95	FM Osc.Coil		0Ω			
96	FM Osc. Shunt Coil		0Ω			
97	AM Input IF	12Ω	12.1Ω	B57954-1	16-6658	
98	FM " "	.3Ω	.1Ω	B57972-1		
99	AM Inter. Stage IF	11.9Ω	11Ω	B57958-1	16-6659	
100	AM Output IF	12.3Ω		B57963-1	16-6670	
101	FM " "	.4Ω	.1Ω	B57976-1		
102	Ratio Det.	.6Ω	.2Ω	B57994-1		
103	RF Choke		1.5Ω	A57931		



DIAL LIGHT

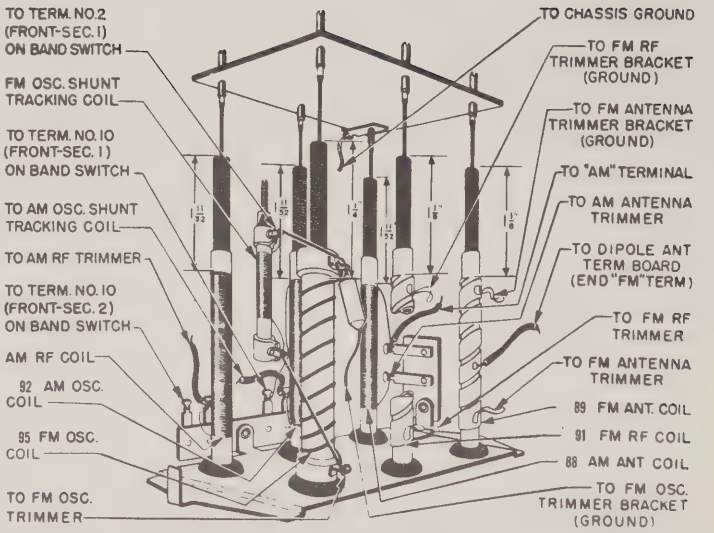
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA TRUETONE PART No.		INSTALLATION NOTES
104	Bayonet	6-8	0.15	Brown	A-6158		Type 47
105	"	6-8	0.15	"	A-6158		" "

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA TRUETONE PART No.	REPLACEMENT DATA ASTATIC PART No.	REMARKS
106		L-70-A	L70 original part.

MISCELLANEOUS

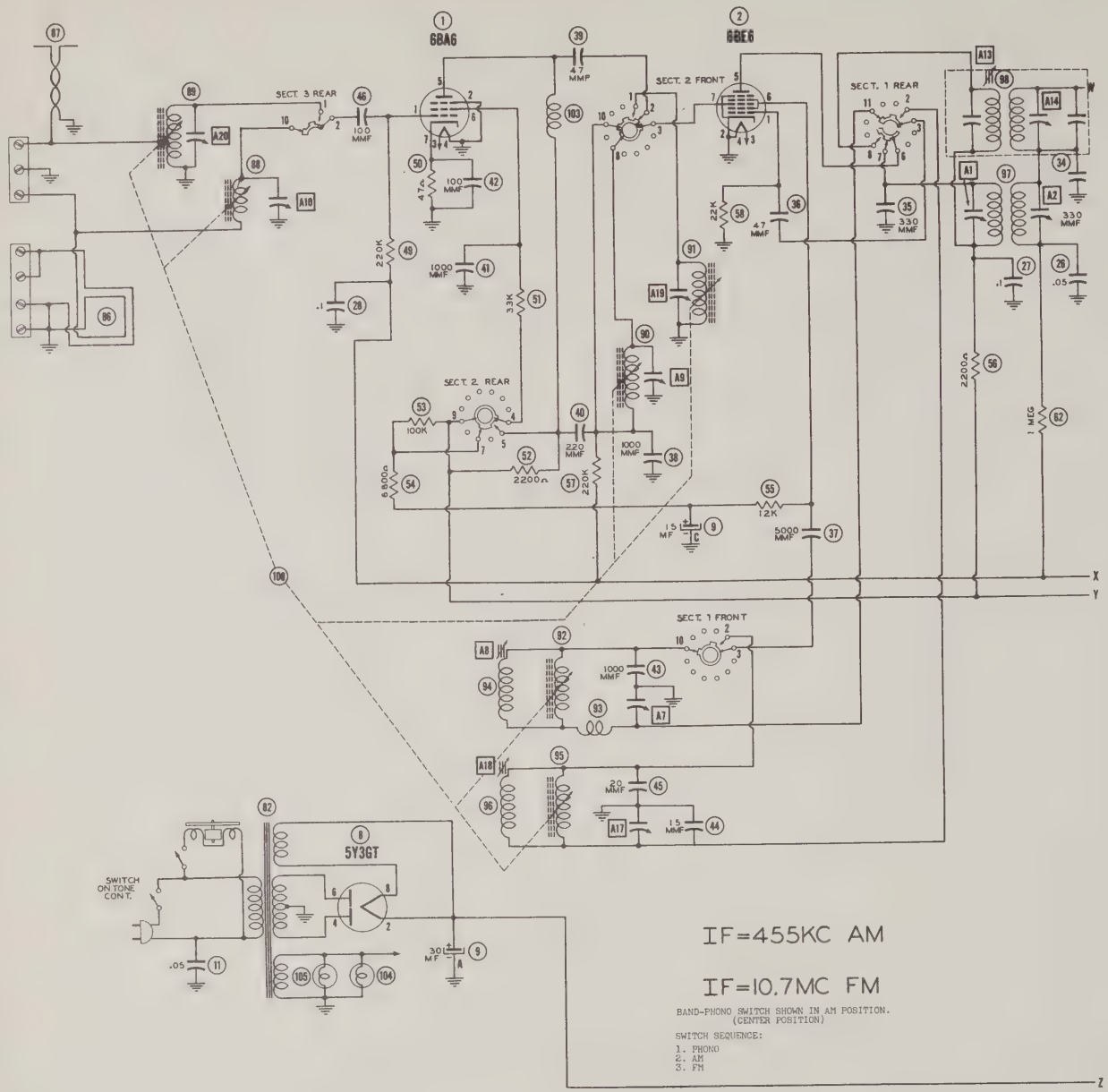
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
107	Switch	B-57923-1	Band-Phono
108	Tuning Assby.	D-57920	
A7, A9, A10	Trimmer Strip	B-57942-1	BC Osc. Adj. / BC RF Adj. / BC Ant. Adj.
A17	Trimmer	B-57938-1	FM Osc. Adj.
A19	"	B-57939-1	FM RF Adj.
A20	"	B-57939-2	FM Ant. Adj.
	Dial	C-59317-1	Crystal & Indicator
	Dial Pointer	A-58316-1	


TO TERM. NO.2 (FRONT-SEC. 1) ON BAND SWITCH
FM OSC. SHUNT TRACKING COIL
TO TERM. NO. 10 (FRONT-SEC. 1) ON BAND SWITCH
TO AM OSC. SHUNT TRACKING COIL
TO AM RF TRIMMER
TO TERM. NO. 10 (FRONT-SEC. 2) ON BAND SWITCH
AM RF COIL
92 AM OSC. COIL
95 FM OSC. COIL
TO FM OSC. TRIMMER
TO CHASSIS GROUND
TO FM RF TRIMMER BRACKET (GROUND)
TO FM ANTENNA TRIMMER BRACKET (GROUND)
TO "AM" TERMINAL
TO AM ANTENNA TRIMMER
TO DIPOLE ANT TERM BOARD (END "FM" TERM)
TO FM RF TRIMMER
TO FM ANTENNA TRIMMER
89 FM ANT. COIL
91 FM RF COIL
88 AM ANT COIL
TO FM OSC. TRIMMER BRACKET (GROUND)

Permeability Tuner Illustration

DATE 2/48 SET #34 FOLDER #484-25

TRUETONE MODEL D1752 (Fact. #7901-14) PAGE 5



VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	0V.	0V.	6.4VAC	0V.	235VDC	115VDC	.8VDC	-
2	6BE6	-7.5VDC§	0V.	6.4VAC	0V.	250VDC	115VDC	-.1VDC	-
3	6SQ7	0V.	0V.	1VDC	0V.	1VDC	140VDC	6.4VAC	235VDC
4	6SQ7	0V.	0V.	.8VDC	0V.	.8VDC	115VDC	6.4VAC	235VDC
5	6SQ7	0V.	-.2VDC	0V.	-.4VDC	-.2VDC	100VDC	6.4VAC	0V.
‡ 6	6H6	0V.	6.4VAC	-.2VDC	-.15VDC	-.1VDC	-.1VDC	0V.	0V.
7	6V6GT	0V.	6.4VAC	235VDC	250VDC	0V.	0V.	0V.	13VDC
8	5Y3GT	0V.	310VDC	0V.	330VAC	0V.	330VAC	0V.	310VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6BA6	1.5 Meg.	0Ω	.1Ω	0Ω	300KΩ	340KΩ	4mΩ	-
2	6BE6	20KΩ	0Ω	.1Ω	0Ω	300KΩ	320KΩ	1.5 Meg.	-
3	6SQ7	0Ω	0Ω	60Ω	2.5 Meg.	60Ω	340KΩ	.1Ω	300KΩ
4	6SQ7	0Ω	0Ω	58Ω	12Ω	58Ω	350KΩ	.1Ω	300KΩ
5	6SQ7	0Ω	7 Meg.	0Ω	INF.	400KΩ	650KΩ	.1Ω	0Ω
‡ 6	6H6	0Ω	.1Ω	30KΩ	1 Meg.	1 Meg.	500KΩ	0Ω	0Ω
7	6V6GT	INF.	.1Ω	300KΩ	300KΩ	600KΩ	500KΩ	0Ω.	300Ω
8	5Y3GT	INF.	300KΩ	INF.	90Ω	INF.	85Ω	INF.	300KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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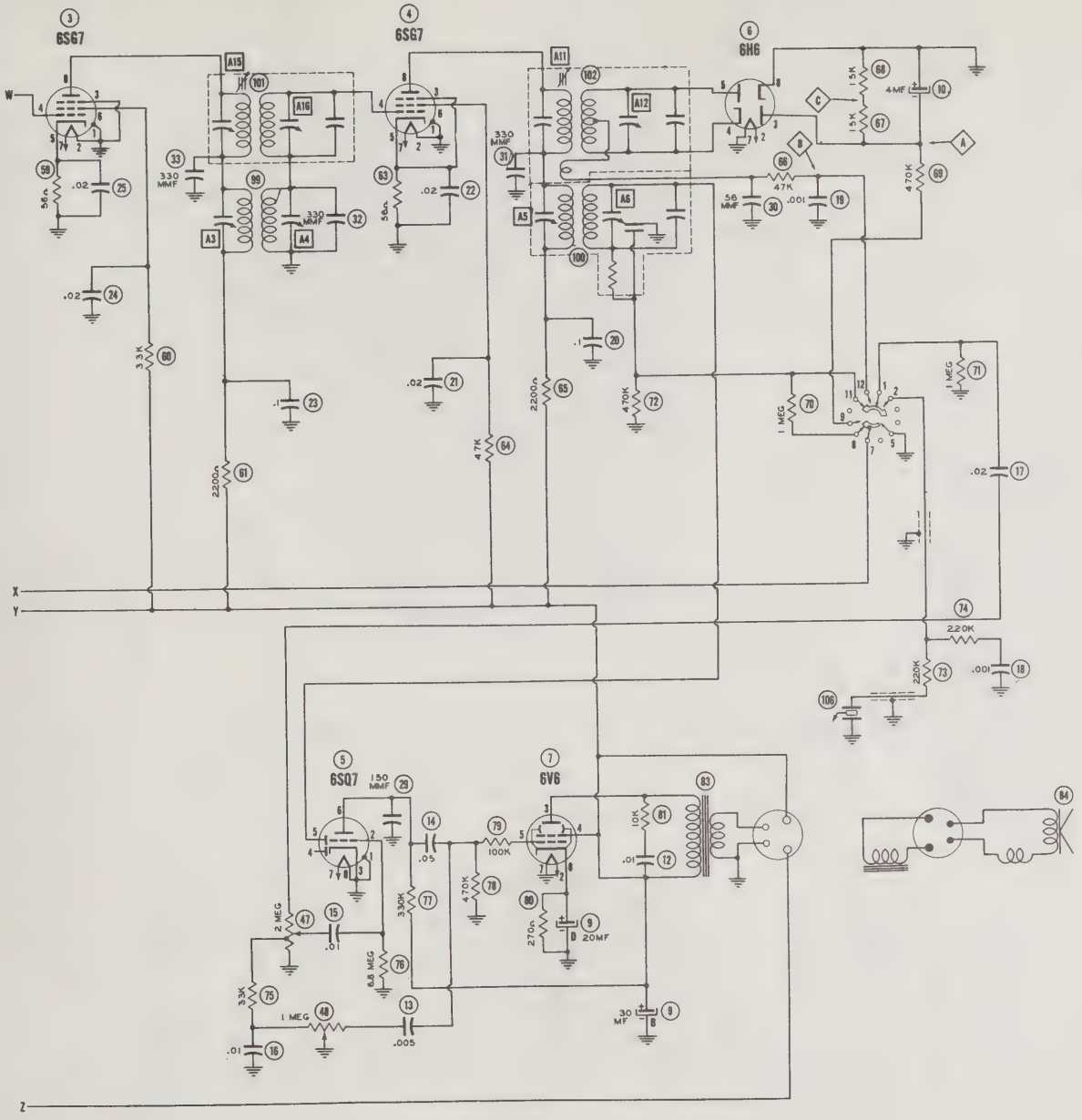
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



STAGE GAIN MEASUREMENTS		
RF GRID TO CONVERTER GRID	10X	600KC
CONVERTER GAIN	7X	IN 600KC OUT 455KC
1st IF TRANS.	.55X	455KC
1st IF TUBE	120X	455KC
2nd IF TRANS.	.25X	455KC
2nd IF TUBE	120X	455KC
3rd IF TRANS.	.85X	455KC
AUDIO	80X	400~
OUTPUT	30X	400~

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning slugs fully in and set pointer to 1st index mark at right side of pointer saddle guide.

Before attempting alignment check for correct positions of tuning slugs per tuner illustration.

Use insulated alignment screwdriver for all adjustments.

AM ALIGNMENT

In Step 5 AM loop must be connected.

In Step 3 if 1620KC signal comes in below 1620KC reference mark (last mark at right side of pointer saddle guide) turn A8 out a turn and repeat Step 2. If when tuning slugs are turned completely out the signal is not received turn A8 in a turn and repeat Step 2. Repeat steps 2 & 3 until calibration is correct.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 7 (grid) 6BE6. Low side to chassis.	455KC	BC	Tuning slugs out completely.	Across voice coil	A1,A2, A3,A4, A5,A6.	Adjust for maximum output
2	.1 MFD.	High side to Pin 1 (grid) 6BA6. Low side to chassis.	535KC	"	Tuning slugs in completely	"	A7	" " " "
3	.1 MFD.	"	1620KC	"	Tuning slugs out completely.	"	A8	Adjust per prealignment instructions.
4	.1 MFD.	"	535KC	"	Tuning slugs in completely	"	A9	Adjust for maximum output.
5		Loop	1400KC	"	Tune for maximum output.	"	A10	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

In Step 10 if signal comes in below 108.75MC reference mark (same as 1620KC mark) turn A18 out half a turn and repeat Step 9. If signal is not received turn A18 in half a turn and repeat Step 9. Repeat Steps 9 & 10 until calibration is correct.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6	.1 MFD.	High side to Pin 4 (grid) 6SG7 2nd IF Tube (4). Low side to chassis.	10.7MC (unmodulated)	FM	Tuning slugs fully out.	DC probe to Point (A). Common to chassis	A11	Adjust for maximum deflection with an approximate meter reading of 5 volts.
7	.1 MFD.	"	"	"	"	DC probe to Point (B). Common to Point (A)	A12	Adjust for zero deflection.
8	.1 MFD.	High side to Pin 7 (grid) 6BE6. Low side to chassis.	"	"	"	DC probe to Point (A). Common to chassis	A13,A14 A15,A16	Adjust for maximum deflection with an approximate meter reading of 5 volts.
9	.1 MFD.	High side to Pin 1 (grid) 6BA6. Low side to chassis.	87.25MC	"	Tuning slugs fully in.	"	A17	Adjust for maximum deflection.
10	.1 MFD.	"	108.75MC	"	Tuning slugs fully out.	"	A18	Adjust per prealignment notes.
11	.1 MFD.	"	87.25MC	"	Tuning slugs fully in.	"	A19	Adjust for maximum deflection.
12	300Ω carbon res.	High side to ungrounded FM terminal of FM Ant. terminal strip through 300Ω. Low side to chassis.	"	"	"	"	A20	"

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use freq. modulated signal 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

In Step 7 disconnect grid lead from Pin 7 of 6BE6. Connect 100KΩ resistor from Pin 7 to chassis making connections as short as possible.

In Step 10 if coincidence of pattern of Fig. 1 is obtained below 108.75MC reference mark (same as 1620KC mark) turn A18 out half a turn and repeat Step 9. If coincidence of pattern of Fig. 1 is not obtainable turn A18 in half a turn and repeat Step 9. Repeat Steps 9 & 10 until a coincident pattern is obtained at correct calibration points of 87.25MC and 108.75MC.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6	.1 MFD.	High side to Pin 4 (grid) 6SG7 1st IF Tube (3). Low side to Chassis.	10.7MC (freq. modulated)	FM	Tuning slugs fully out.	Vertical input to Point (A). Ground to chassis.	A11,A16, A15	Disconnect 4 MFD cap. from Point (A). Adjust A11, A16 & A15 for maximum amplitude, symmetry & coincidence of pattern per Fig. 1.
7	.1 MFD.	High side to Pin #7 of 6BE6. Low side to chassis.	"	"	"	"	A14, A13	Adjust for maximum amplitude, symmetry & coincidence of pattern per Fig. 1.
8	.1 MFD.	Remove 100KΩ resistor from Step 7 and reconnect grid lead to 6BE6. High side to Pin 4 (grid) 6SG7 1st IF Tube (3). Low side to chassis.	"	"	"	Vertical input to Point (B). Ground to chassis.	A12	Reconnect 4 MFD cap. to Point (A). Adjust A12 for for maximum straightness of crossover lines with crossover occurring at center of pattern of Fig. 2.
9	300Ω carbon res.	High side to ungrounded terminal of FM ant. terminal strip. Low side to chassis.	87.25MC	"	Tuning slugs fully in.	Vertical input to Point (A). Ground to chassis.	A17	Disconnect 4 MFD cap. from Point (A). Adjust A17 for coincidence of pattern per Fig. 1
10	"	"	108.75MC	"	Tuning slugs fully out.	"	A18	Adjust per prealignment instructions.
11	"	"	87.25MC	"	Tuning slugs fully in.	"	A19, A20	Adjust for maximum amplitude. Reconnect 4 MFD cap. to Point (A).

FIG. 1

FIG. 2

WEBSTER MODEL 66-1A

TRADE NAME	Webster, Model 66-1A
MANUFACTURER	Webster-Chicago, 5610 Bloomingdale Ave., Chicago 39, Ill.
TYPE SET	AC Operated One Channel Audio Amplifier
TUBES (FOUR)	Types, 6N7 AF-Phase Inv., (2) 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC RATING 1.06 Amp. @ 117 Volts AC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6N7	0V.	3.2VAC	82VDC	0V.	0V.	82VDC	3.2VAC	2VDC
2	6V6GT	0V.	3.2VAC	285VDC	290VDC	0V.	0V.	3.2VAC	16VDC
3	6V6GT	0V.	3.2VAC	285VDC	290VDC	0V.	170VDC	3.2VAC	16VDC
4	5Y3GT	0V.	290VDC	0V.	280VAC	0V.	280VAC	0V.	290VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6N7	0Ω	.1Ω	600KΩ	20KΩ	0Ω	600KΩ	.1Ω	1KΩ
2	6V6GT	0Ω	.1Ω	500KΩ	500KΩ	550KΩ	22KΩ	.1Ω	200Ω
3	6V6GT	0Ω	.1Ω	500KΩ	500KΩ	500KΩ	500KΩ	.1Ω	200Ω
4	5Y3GT	INF.	500KΩ	INF.	65Ω	INF.	70Ω	INF.	500KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at minimum, no signal applied for voltage measurements.

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DATE 2/48 SET #34 FOLDER #484-26

WEBSTER MODEL
66-1A

WEBSTER MODEL
66-1A

PARTS LIST AND DESCRIPTIONS

WEBSTER MODEL 66-1A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WEBSTER PART No.	STANDARD REPLACEMENT		
1	AF-Phase Inv.	6N7	6N7	8B	
2	Power Output	6V6GT	6V6GT	7AC	
3	" "	6V6GT	6V6GT	7AC	
4	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WEBSTER PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5A	15	450		DY-3x15-450	EL-344	AFF44J	UP15D145	Filter
B	15	350			UT-4	PRS450-16	BR445	■ Filter
C	15	350						▲ "
6	10	25		M-10-25	TA-10	PRS25-10	BR102A	Cathode Bypass
7	10	25		M-10-25	TA-10	PRS25-10	BR102A	" "
8	.05	400		MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.05	600		S-6-05	TC-15	684-05	DT6S5	Audio Coupling
10	.05	600		S-6-05	TC-15	684-05	DT6S5	" "
11	.002	600		S-6-002	TC-22	684-002	DT6D2	Tone Comp.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	WEBSTER PART No.	IRC PART No.	CLAROSTAT PART No.	
12A	1 Meg.	½		D13-137	AM-63-Z	Volume Control
B	Shaft			E	KSS-3	Attach to 12A per instructions
13A	1 Meg.	½		D13-137	AM-63-Z	Tone Control
B	Shaft			E	KSS-3	Attach to 13A per instructions
C	Switch			41	SW-A	" " " " "

RESISTORS

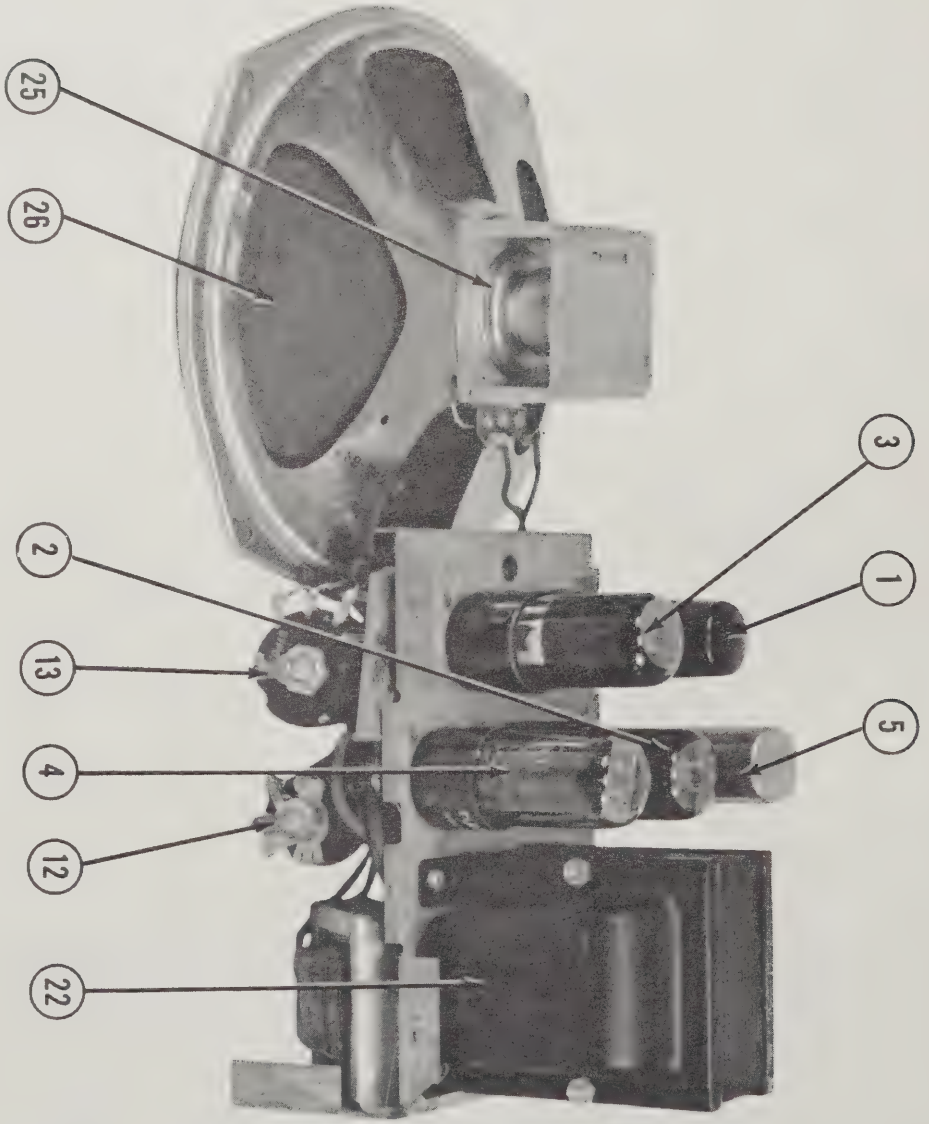
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WEBSTER PART No.	IRC PART No.	
14	1000Ω	½		BTS-1000	Br.-Blk.-Red AF Cathode
15	100KΩ	1		BTA-100K	Br.-Blk.-Yl. AF Plate Load
16	100KΩ	1		BTA-100K	Br.-blk.-Yl. Phase Inverter Plate Load
17	22KΩ	½		BTS-22K	Red-Red-Or. Phase Inverter Grid
18	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
19	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
20	200Ω	5		AB-200	Output Cathode
21	68KΩ	1		BTA-68K	blue-Gray-Or. Decoupling

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	WEBSTER PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
22	117V AC @ 1.06A	560V CT @ .088A	5.0V AC @ 2.0A	6.4V CT @ 2.1A	68P003	P-4079*	T22R31*	

*Drill new mounting holes and add resistor to reduce plate voltage.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM NO.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000~)	WEBSTER PART NO.	STANCOR PART NO.	THORDARSON PART NO.	MERIT PART No.	
23	.01A	125Ω	2 Henries	67P006	C-1706	T20C52	C-2975	

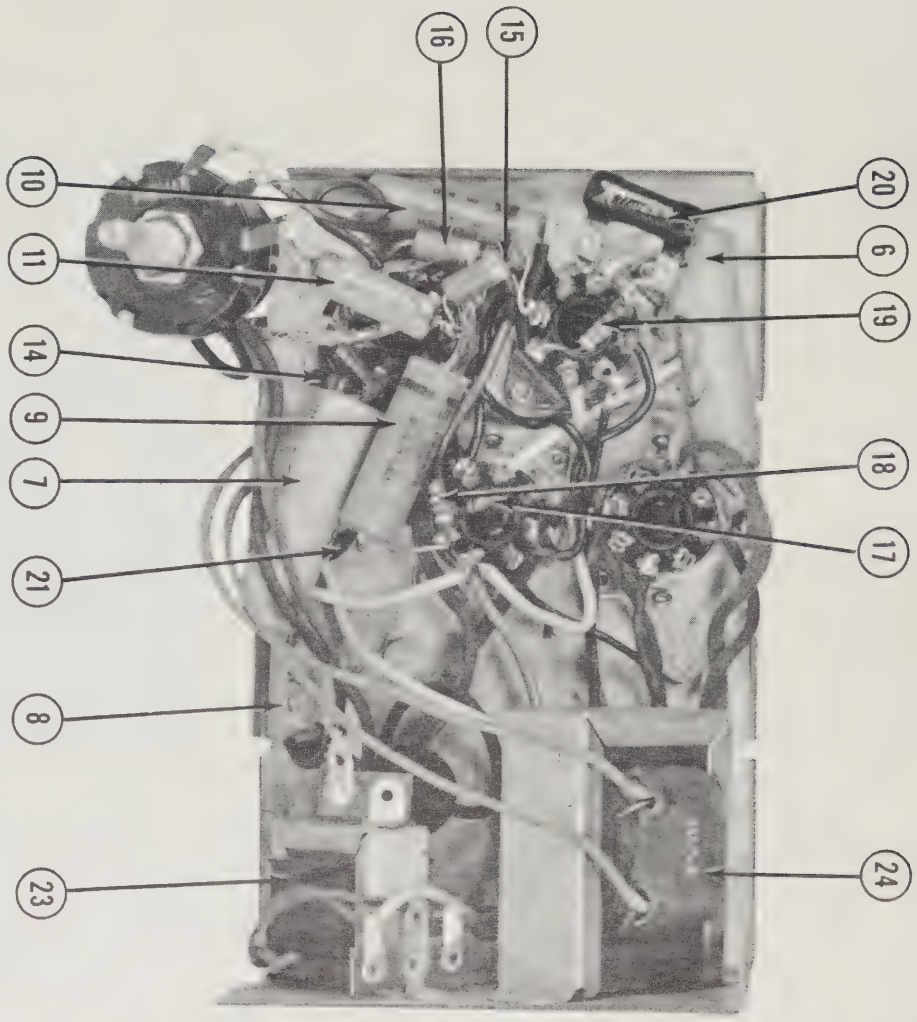
TRANSFORMER (OUTPUT)

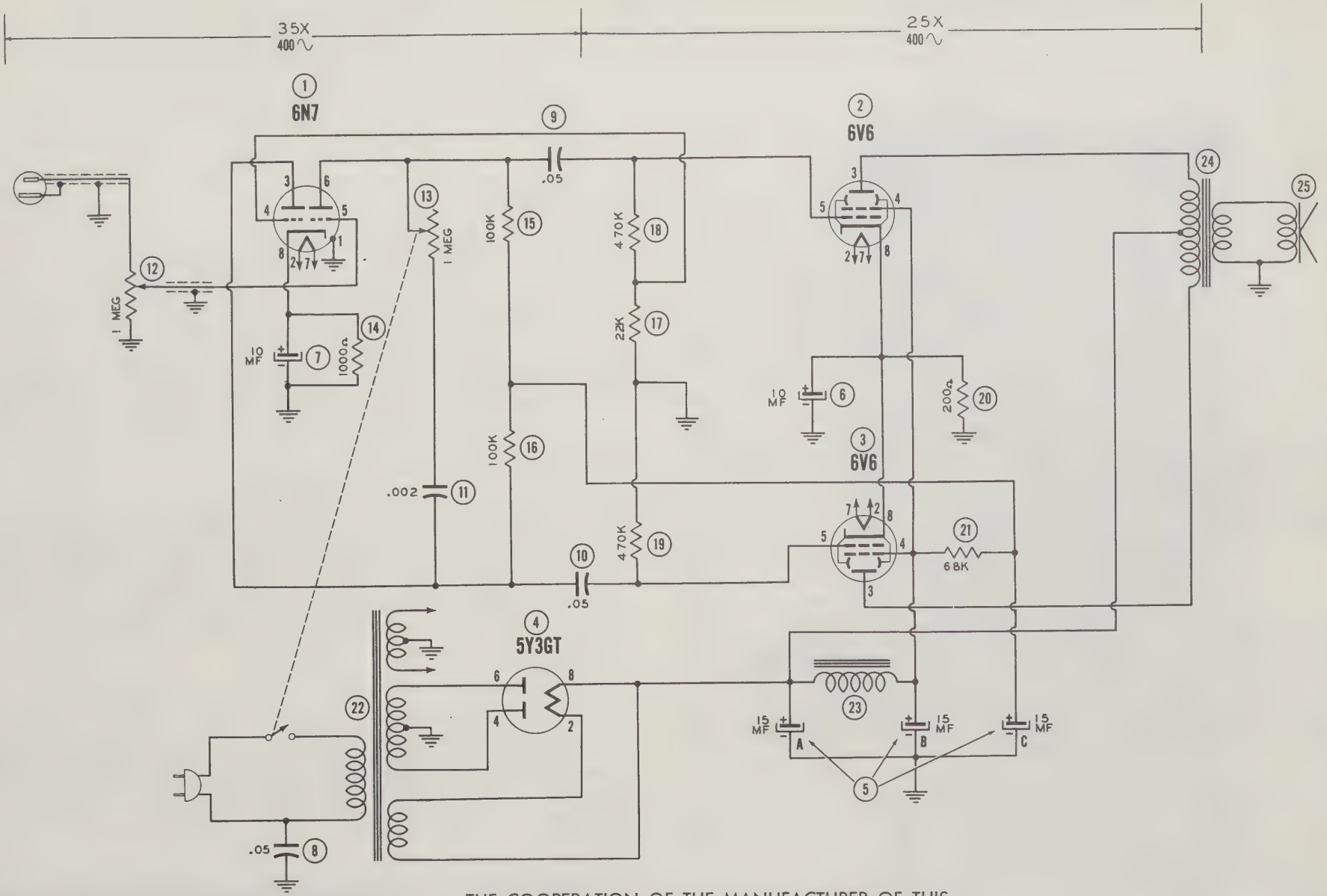
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WEBSTER PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
24	11000Ω CT	3.7Ω	320Ω CT	.4Ω	67P007	A-3852	T22S47†	A-2936	†Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WEBSTER PART No.	JENSEN PART No.	QUAM PART No.	
25	FIELD PM	VC IMP. 3.7Ω	76P014	ST-116 Mod. P8-U	8A31	
26	CONE DIA. 7-3/8"	VC DIA. 5/8"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

CHASSIS—BOTTOM VIEW





A PHOTOFACT STANDARD NOTATION SCHEMATIC

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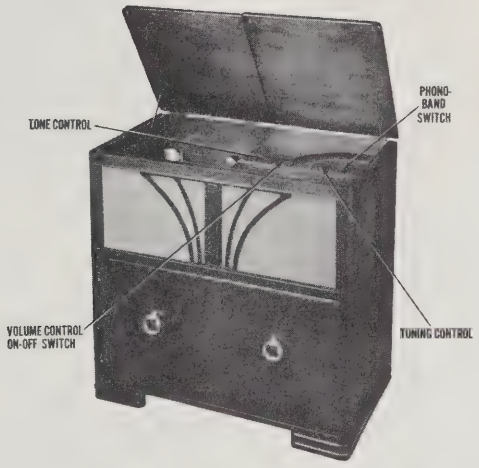
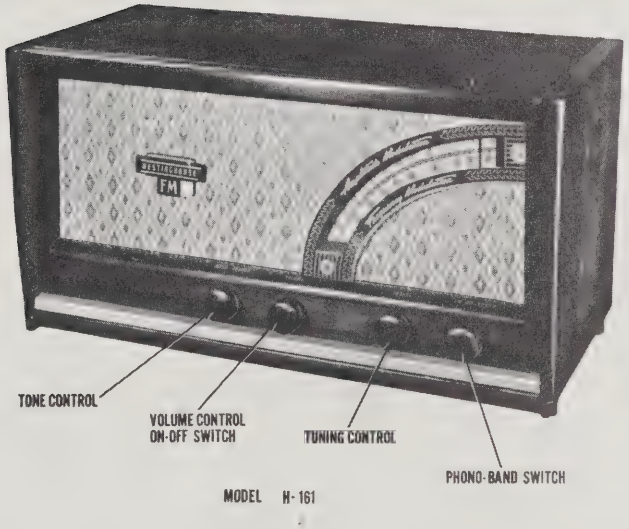
THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

WESTINGHOUSE MODELS H-161, H-168, H-168A (Ch. V-2118)



MODEL H-168



MODEL H-161

TRADE NAME	Westinghouse, Models H-161, H-168, H-168A (Ch. V-2118)
MANUFACTURER	Westinghouse Electric Corp., Receiver Div., Sunbury, Pa.
TYPE SET	AC Operated AM-FM Superheterodyne Receiver with Loop Antenna
TUBES (EIGHT)	Types, 6J6 Converter, 6BA6 1st IF Amp., 6BA6 2nd IF Amp., 6AU6 Limiter, 7A6 Ratio Det., 6AT6 Det.-AVC-AF, 6L6G Power Output, 5AZ4 Rectifier.
POWER SUPPLY	105-120 Volts AC RATING .90 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1615KC FREQ. MOD. 88-108MC

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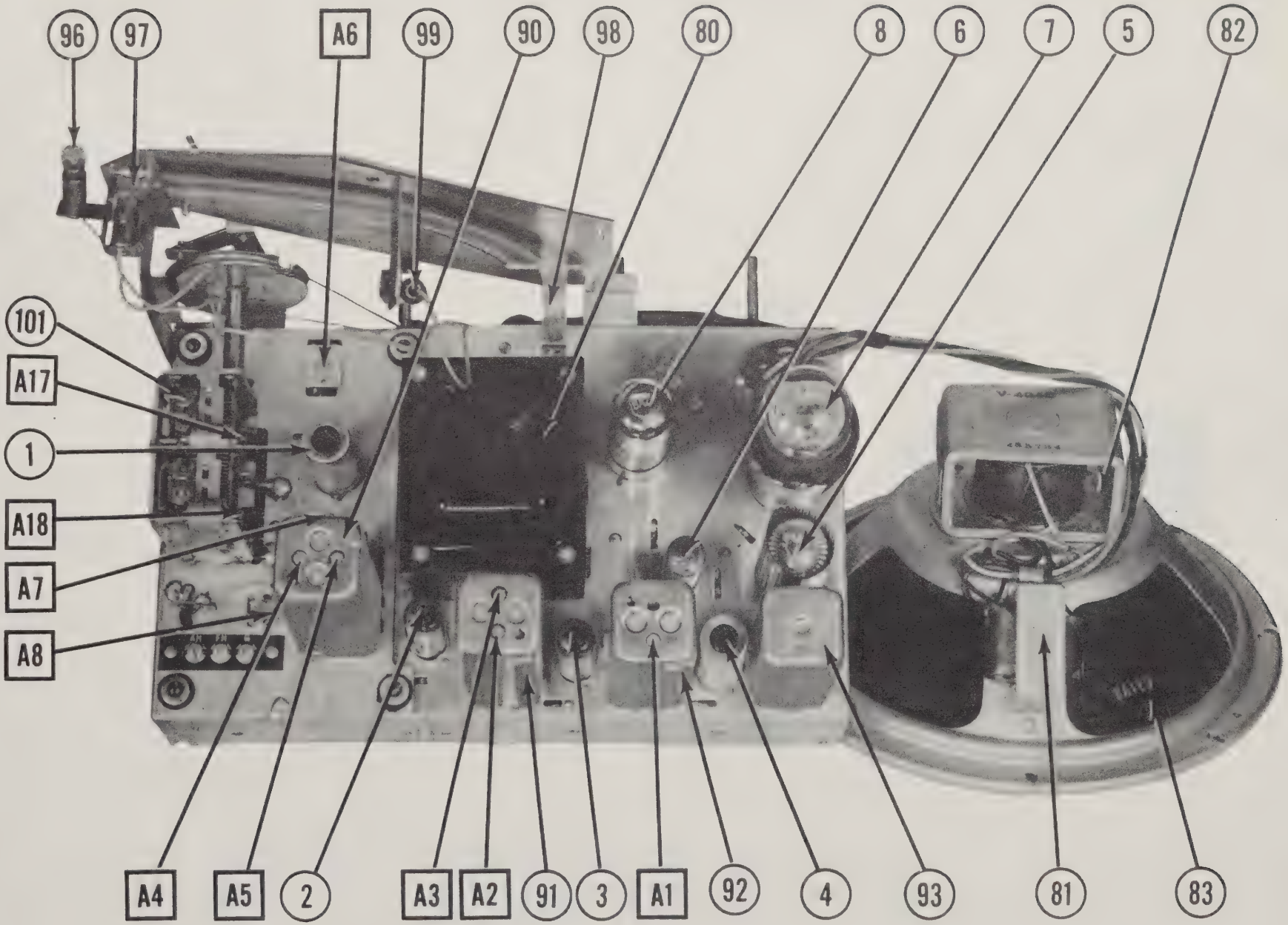
DATE 2/48 SET #34 FOLDER #484-27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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	6J6	6J6	7BF	
2	1st IF Amp.	6BA6	6BA6	7BK	
3	2nd IF Amp.	6BA6	6BA6	7BK	
4	Limiter	6AU6	6AU6	7BK	
5	Ratio Det.	7A6	7A6	7AJ	
6	Det.-AVC-AF	6AT6	6AT6	7BT	
7	Power Output	6L6G	6L6G	7AC	
8	Rectifier	5AZ4	5AZ4		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WESTINGHOUSE PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
9A	30	450	V-4635	DY-2x30-450	EL-330*		UP3345	▲ Filter
B	30	450						▲ "
10	50	25	V-4636	M-50-25	TA-50	PRS150-25	BR502	Cathode Bypass
11	4	450	V-4885	M-4-450	UT-4	PRS450-4	BR445	Stabilizing Cap.
12	4	450	V-4885	M-4-450	UT-4	PRS450-4	BR445	Decoupling Filter
13A	.01	600	V-4634	MPH-6-01	TC-11	684-01	DT6S1	Line Filter
B	.01	600		MPH-6-01	TC-11	684-01	DT6S1	" "
14	.01	600	V-5040-15	S-6-01	TC-11	684-01	DT6S1	RF Bypass Power Supply
15	.01	600	V-5040-15	S-6-01	TC-11	684-01	DT6S1	" " " "
16	.005	600	RCP10M6502A	S-6-005	TC-25	684-005	DT6D5	Output Plate Bypass
17	.03	400	RCP10W4303A	S-6-03	TC-13	484-03	DT4S3	Audio Coupling
18	.03	400	RCP10W4303A	S-6-03	TC-13	484-03	DT4S3	" "
19	.001	600	RCP10W6102A	S-6-001	TC-21	684-001	DT6D1	Tone Comp.
20	.002	600	RCP10W6202A	S-6-002	TC-22	684-002	DT6D2	Audio Coupling
21	.01	400	RCP10W4103A	S-4-01	TC-11	484-01	DT4S1	" "
22	.001	600	RCP10W6102A	S-6-001	TC-21	684-001	DT6D1	De-emphasis
23	.01	600	V-5040-15	S-6-01	TC-11	684-01	DT6S1	Limiter Decoupling
24	.01	600	V-5040-15	S-6-01	TC-11	684-01	DT6S1	2nd IF Decoupling
25	.005	600	RCP10M6502A	S-6-005	TC-25	684-005	DT6D5	2nd IF Screen Bypass
26	.01	200	V-5040-13	S-4-01	TC-11	484-01	DT4S1	Filament Bypass
27	.01	600	V-5040-15	S-6-01	TC-11	684-01	DT6S1	1st IF Decoupling
28	.005	600	RCP10M6502A	S-6-005	TC-25	684-005	DT6D5	1st IF Screen Bypass
29	.02	400	RCP10W4203A	S-4-02	TC-12	484-02	DT4S2	AVC Filter
30	.01	600	V-5040-15	S-6-01	TC-11	684-01	DT6S1	" "
31	150	500	RCM20A151M	MO.5-315	1FM-315	1468-00015	5W5T15	AF Plate Bypass
32	220	500	RCM20A221K	MO.5-325	1FM-325	1468-00025	5W5T25	RF Bypass
33	220	500	RCM20A221K	MO.5-325	1FM-325	1468-00025	5W5T25	" "
34	220	500	RCM20A221K	MO.5-325	1FM-325	1468-00025	5W5T25	Diode Load Cap.
35	47	500	RCM20A470M	MO.5-45	1FM-45	1468-00005	5W5Q5	Limiter Grid Filter
36	4700	300	RCM30A472M	MW.5-25	1FM-25		1D5D5	Limiter Screen Bypass
37	100	500	RCM20A101M	MO.5-31	1FM-31	1468-0001	5W5T1	Diode RF Filter
38	100	500	RCM20A101M	MO.5-31	1FM-31	1468-0001	5W5T1	" " "
39	4700	300	R5CC30ZY472M	MW.5-25	1FM-25		1D5D5	AVC Filter - Cer.
40	22	500	RCM20B220K	MO.5-425	1FM-425	1468-000025	5W5Q25	Conv. Plate Bypass
41	470	300	R5CC20ZY471M	MO.5-35	1FM-35	1468-0005	5W5T5	Conv. Decoupling - Cer.
42	100	300	R3CC30CG101K	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.-Cer.
43	4700	300	R5CC30ZY472M	MW.5-25	1FM-25		1D5D5	Conv. Cathode Bypass-Cer.
44	470	500	RCM20A471M	MO.5-35	1FM-35	1468-0005	5W5T5	RF Coupling
45	470	300	R5CC20ZY471M	MO.5-35	1FM-35	1468-0005	5W5T5	Filament Bypass-Cer.
46	100	300	R3CC26SL101M	MO.5-31	1FM-31	1468-0001	5W5T1	Ext. Ant. Coupling-Cer.
47	27	300	R3CC25CG270J					Fixed Trimmer - Cer.

*Omit bypass section.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: WESTING. PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
48A	500KΩ	½	V-4640	D13-133	M-60-Z	Volume Control
B	Shaft		Not Req.	A	Not Req.	Attach to 48A per instructions
C	Switch		" "	41	SW-A	" " " " "
49A	2 Meg.	½	V-4639	D13-139	M-66-Z	Tone Control
B	Shaft		Not Req.	A	Not Req.	Attach to 49A per instructions

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: MEISSNER PART No.	
84A	AM Loop Ant.		.1Ω	V-4686		Used only in Model #H161
B	" " "		.1Ω	V-4951		" " " " #H168, 168A
85A	FM Dip. "			V-4924-1		" " " " #H161
B	" " "			V-4924-2		" " " " #H168, 168A
86	Ant. Loading Coil		2.3Ω	V-4675	14-1026	Tapped @ 1.8Ω
87	FM Ant.Coil		0Ω	V-4883		
88	AM Osc. "		8.5Ω	V-4676	14-1040	
89	FM " "		0Ω	V-4882		
90	1st IF AM&FM		6.9Ω‡	V-4627		
91	2nd " " "	5Ω#	4.3Ω‡	V-4628		
92A	3rd IF AM	9.8Ω#	11.9Ω	V-4629		
B	3rd IF FM		.9Ω			
93	Disc.Trans.	.5Ω	.3Ω	V-4630		
94	Fil. Choke		0Ω	V-4638		
95	" "		0Ω	V-4638		

‡Includes both secondaries. #Includes both primaries.

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA	INSTALLATION NOTES
96-98	Bayonet	7.5	0.2	White	51		Type 51
99	"	6-8	0.25	Blue	44		Type 44

MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
100	Switch	V-4682	Band
101	2 Gang Var. Cap.	V-4673	AM (16-549 MMF, 10-189MMF)
A6	Trimmer	V-4672	BC Osc. Adj.
A8	"	V-4671	BC Ant. Adj.
	Dial	V-4642	Plastic
	Plate	V-4701	Front Glass (H-161)
	"	V-5297	" " (H-168, H-168A)
	Pointer Assby.	V-4647	

DISASSEMBLY INSTRUCTIONS

1. Remove four push-on type control knobs.
2. Remove FM antenna leads from chassis.
3. Unsolder loop antenna leads from chassis.
4. Remove speaker plug from chassis.
5. Remove phono pickup plug from chassis.
6. Remove two Phillips head wood screws and three flat head wood screws holding control panel board to cabinet. Remove board from cabinet.
7. Remove two hex head screws holding chassis in cabinet. Lift chassis out top of cabinet.
8. Remove four wood screws holding speaker in cabinet.

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WESTINGHOUSE PART No.	IRC PART No.	
50	220Ω	½	RC10AE221K	BW-½-220	Red-Red-Br. Converter Cathode
51	22KΩ	½	RC10AE223K	BTS-22K	Red-Red-Or. Oscillator Grid
52	68KΩ	½	RC20AE683K	BTS-68K	Blue-Gray-Or. Converter Plate Load
53	18KΩ	1	RC30AE183K	BTA-18K	Br.-Gray-Or. Converter Decoupling
54	1 Meg.	½	RC10AE105M	BTS-1 Meg.	Br.-Blk.-Grn. Converter Grid
55	470KΩ	½	RC10AE474M	BTS-470K	Yl.-Vi.-Yl. Series Phono
56	1 Meg.	½	RC10AE105M	BTS-1 Meg.	Br.-Blk.-Grn. AVC Network
57	150KΩ	½	RC10AE154M	BTS-150K	Br.-Grn.-Yl. Diode Load Cap.
58	150KΩ	½	RC10AE154M	BTS-150K	Br.-Grn.-Yl. Diode Load Cap.
59	33KΩ	1	RC30AE333K	BTA-33K	Or.-Or.-Or. 1st IF Screen Dropping
60	3300Ω	1	RC30AE332K	BTA-3300	Or.-Or.-Red 1st IF Decoupling
61	68Ω	½	RC10AE680K	BW-½-68	Blue-Gray-Blk. 2nd IF Cathode
62	33KΩ	1	RC30AE333K	BTA-33K	Or.-Or.-Or. 2nd IF Screen Dropping
63	3300Ω	1	RC30AE332K	BTA-3300	Or.-Or.-Red 2nd IF Decoupling
64	2.2 Meg.	½	RC10AE225M	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
65	47KΩ	½	RC10AE473M	BTS-47K	Yl.-Vi.-Or. Diode RF Filter
66	100KΩ	½	RC10AE104K	BTS-100K	Br.-Blk.-Yl. Limiter Grid
67	150KΩ	½	RC20AE154K	BTS-150K	Br.-Grn.-Yl. Limiter Screen Dropping
68	10KΩ	1	RC30AE103K	BTA-10K	Br.-Blk.-Or. Limiter Decoupling
69	68KΩ	½	RC10AE683M	BTS-68K	Blue-Gray-Or. De-emphasis
70	15KΩ	½	RC10AE153J	BTS-15K	Br.-Grn.-Or. Ratio Detector Diode Load
71	15KΩ	½	RC10AE153J	BTS-15K	Br.-Grn.-Or. " " " "
72	10 Meg.	½	RC10AE106M	BTS-10 Meg.	Br.-Blk.-Blue AF Grid
73	220KΩ	½	RC10AE224K	BTS-220K	Red-Red-Yl. AF Plate Load
74	100KΩ	½	RC10AE104K	BTS-100K	Br.-Blk.-Yl. AF Plate Load
75	680KΩ	½	RC10AE684K	BTS-680K	Blue-Gray-Yl. Tone Compensation
76	330KΩ	½	RC10AE334K	BTS-330K	Or.-Or.-Yl. Tone Compensation
77	330KΩ	½	RC10AE334K	BTS-330K	Or.-Or.-Yl. Output Grid
78	180Ω	2	V-4648	BW-2-180	Br.-Gray-Br. Output Cathode
79	33Ω	½	RC10AE330K	BW-½-33	Or.-Or.-Blk. Parasitic Suppressor

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	WESTINGHOUSE PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
80	117V AC	640V CT @ .125A	5.0V AC @ 1.0A	6.3V AC @ 3.2A	V-4653	P-6013	T22R05	P-2953

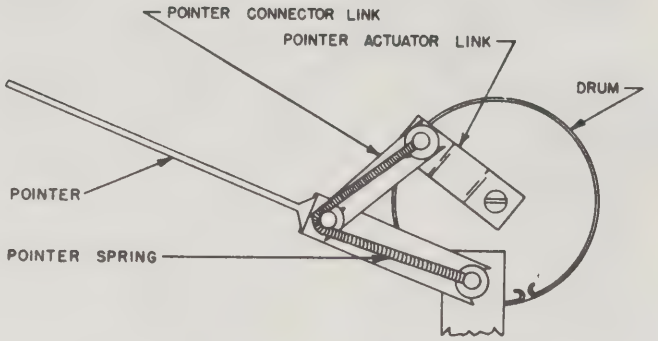
TRANSFORMER (OUTPUT)

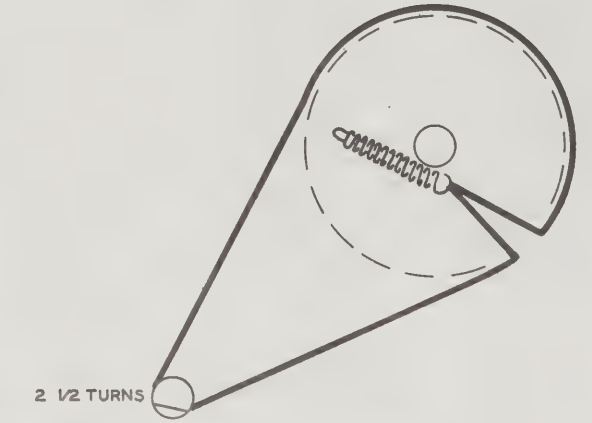
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WESTINGHOUSE PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
81A	2650Ω	3.3Ω	190Ω	.4Ω	V-4702-1	A-3825	T22S87†	A-2904†	Used in Model H-161
B	2650Ω	3.9Ω	190Ω	.6Ω	V-4945-1	A-3830#	T22S87	A-2904	Used in Models H-168, H-168A

†Drill one new mounting hole. #Fabricate new mounting bracket.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD RES.	VC IMP.	WESTINGHOUSE PART No.	JENSEN PART No.	QUAM PART No.	
82A	300Ω	3.3Ω	V-4702			Used in Model H-161
B	330Ω	3.9Ω	V-4945			Used in Models H-168, H-168A
	CONE DIA.	VC DIA.				
83A	7½"	3/4"	V-4702-2			
B	9½"	1"	V-4945-2			





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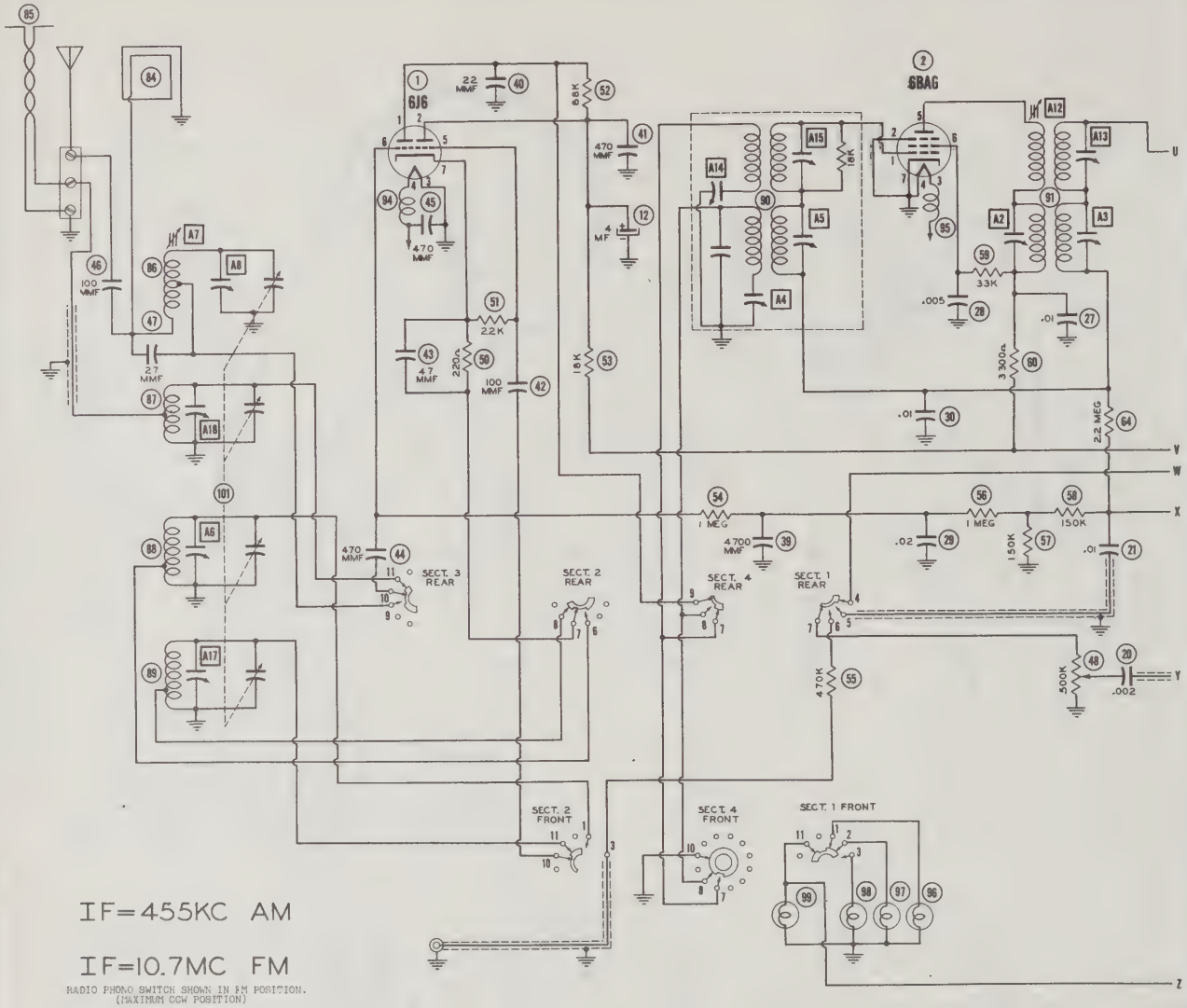

RADIO PHONO SWITCH SHOWN IN FM POSITION. (MAXIMUM CCW POSITION)

SE
SWITCH SEQUENCE:
1. FM
2. AM
3. PHONO

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6J6	50VDC	122VDC	0V.	6.3VAC	-13.5VDC§	-2VDC	1.8VDC	-
2	6BA6	-.05VDC	0V.	6.3VAC	0V.	230VDC	90VDC	0V.	-
3	6BA6	-.06VDC	0V.	0V.	6.3VAC	230VDC	95VDC	1VDC	-
‡ 4	6AU6	-.4VDC	0V.	0V.	6.3VAC	245VDC	52VDC	0V.	-
‡ 5	7A6	0V.	-10VDC	-.5VDC	0V.	0V.	-13VDC	.5VDC	6.3VAC
6	6AT6	-.5VDC	0V.	6.3VAC	0V.	0V.	-.4VDC	75VDC	-
7	6L6	0V.	6.3VAC	260VDC	265VDC	0V.	0V.	0V.	15VDC
8	5AZ4	0V.	320VDC	0V.	320VAC	0V.	320VAC	0V.	320VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6J6	230KΩ	168KΩ	0Ω	.1Ω	23KΩ	2 Meg.	210Ω	-
2	6BA6	3 Meg.	0Ω	.1Ω	0Ω	150KΩ	185KΩ	0Ω	-
3	6BA6	3 Meg.	0Ω	0Ω	.1Ω	150KΩ	185KΩ	68Ω	-
‡ 4	6AU6	100KΩ	0Ω	0Ω	.1Ω	160KΩ	310KΩ	0Ω	-
‡ 5	7A6	0Ω	500KΩ	15KΩ	500KΩ	0Ω	500KΩ	15KΩ	.1Ω
6	6AT6	10 Meg.	0Ω	.1Ω	0Ω	0Ω	350KΩ	450KΩ	-
7	6L6G	0Ω	.1Ω	150KΩ	150KΩ	300KΩ	INF.	0Ω	180Ω
8	5AZ4	INF.	150KΩ	0Ω	60Ω	0Ω	65Ω	0Ω	150KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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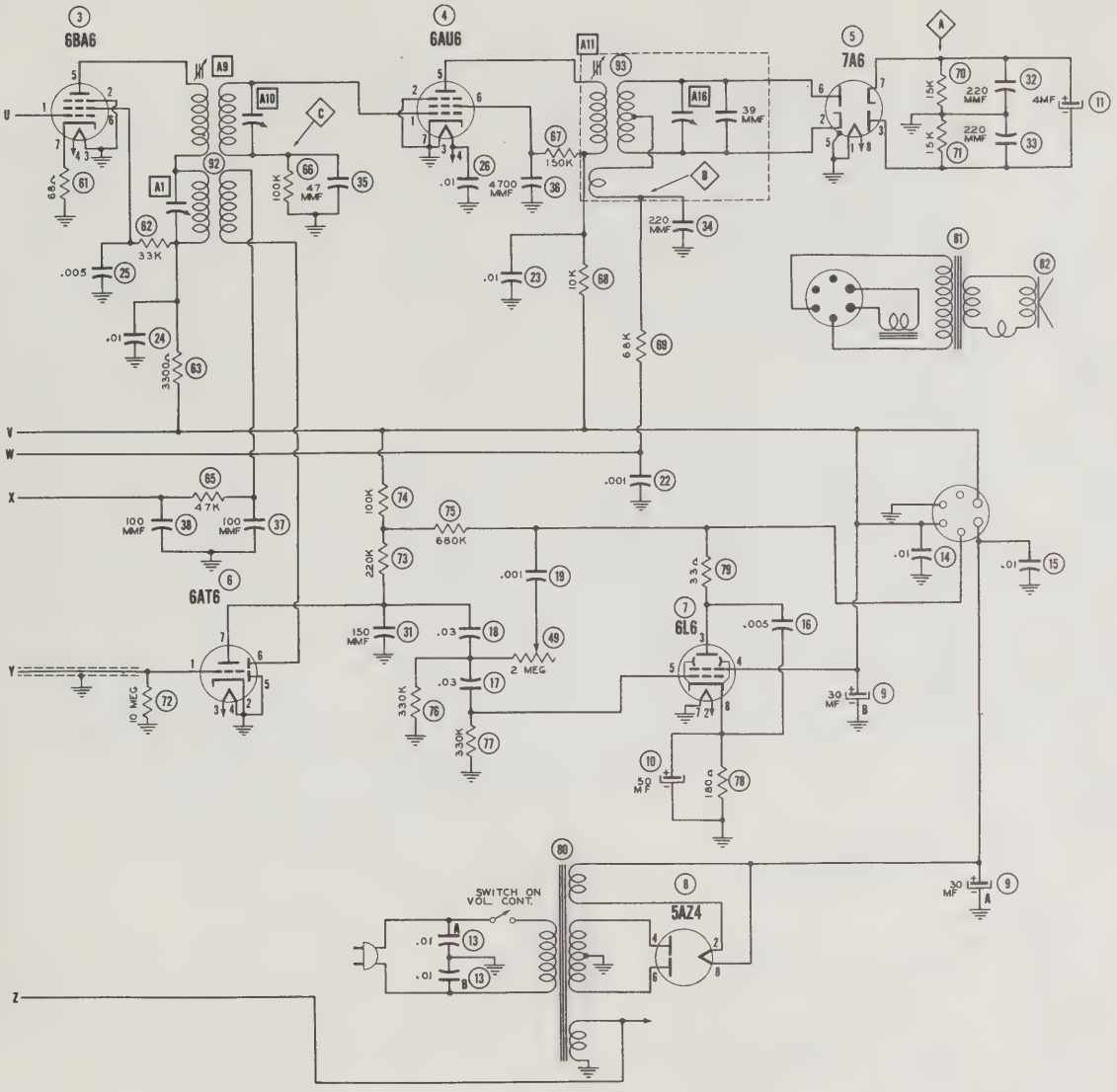

STAGE GAIN MEASUREMENTS			
CONVERTER GAIN	4X	IN	600KC
		OUT	455KC
1st IF TRANS.	.9X		455KC
1st IF TUBE	70X		455KC
2nd IF TRANS.	.8X		455KC
2nd IF TUBE	45X		455KC
3rd IF TRANS.	1.8X		455KC
AUDIO	50X		400∿
OUTPUT	25X		400∿

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1 MFD.	High side to Pin 1 (grid) 6BA6 2nd IF Tube (3). Low side to chassis.	455KC	BC (center position)	Tuning cap. fully closed	Across voice coil	A1	Adjust for maximum output
2	.1 MFD.	High side to Pin 1 (grid) 6BA6 1st IF Tube (2). Low side to chassis.	"	"	"	"	A2,A3	" " " "
3	.1 MFD.	High side to Pin 6 (grid) 6J6. Low side to chassis.	"	"	"	"	A4,A5	" " " "
4	.1 MFD.	"	"	"	"	"	A1,A2, A3,A4, A5.	Adjust for maximum output. Connect loop to chassis.
5		Loop	1600KC	"	1600KC	"	A6	Adjust for maximum output.
6		"	600KC	"	600KC	"	A7	" " " "
7		"	1400KC	"	Tune for maximum output.	"	A8	Rock tuning cap. and adjust for maximum output. Repeat Steps 6 & 7.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

AM IF alignment must be done prior to FM IF alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8	.001 MFD Mica Cap.	High side to Pin 1 (grid) 6BA6 2nd IF Tube (3). Low side to chassis.	10.7MC (unmodulated)	FM (fully counter-clockwise)	88MC	DC probe to Point (A). Common to chassis	A9,A10, A11	Adjust for maximum deflection.
9	"	High side to Pin 1 (grid) 6BA6 1st IF Tube (2). Low side to chassis.	"	"	"	"	A12,A13	"
10	.01 MFD Mica Cap.	High side to rear FM stator of tuning cap. Low side to chassis.	"	"	"	"	A14,A15	"
11	"	"	"	"	"	DC probe to Point (B). Common to chassis	A16	Adjust for zero deflection. Adjustment is correct when a slight adjustment in either direction causes a sharp rise in voltage and of opposite polarity.
12	"	"	"	"	"	DC probe to Point (A). Common to chassis	A11	Adjust for maximum deflection .

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

AM IF alignment must be done prior to FM IF alignment.
Use freq. modulated signal 60~ modulation 450KC sweep except in Step 10. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
8	.01 MFD	High side to Pin 6 (grid) 6BA6 1st IF Tube (2). Low side to chassis.near tube socket of same tube.	10.7MC (freq. mod.)	FM (fully counter-clockwise)	Tuning cap. fully closed	Vertical input to Point (C) Ground to chassis.	A10,A9, A13,A12	Adjust for maximum amplitude, symmetry & coincidence of pattern per Figure 1.
9	.01 MFD	High side to Pin 6 (grid) 6J6. Low side to chassis near socket of same tube.	"	"	"	"	A15,A14	Adjust for maximum amplitude, symmetry and coincidence per Figure 1.
10	.01 MFD	High side to Pin 6 (grid) 6BA6 1st IF Tube (2). Low side to chassis near tube socket of same tube.	10.7MC (freq. mod. 225KC sweep)	"	"	Vertical input to Point (B) Ground to chassis.	A11, A16.	Adjust A11 for maximum amplitude. Adjust A16 for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 2. Continue with FM RF alignment Step 13.

FM RF ALIGNMENT

FM oscillator and antenna trimmers can be adjusted by using thumb and forefinger to rotate outside drum of capacitor. Hand capacity effects may be reduced by holding heel of the hand against the 1st IF transformer can.

After osc. trimmer A17 has been adjusted at 105MC in Step 13 check calibration by tuning to a 90MC signal. If dial pointer indicates 90MC no osc. coil adjustments are necessary. If pointer reads high, slightly expand FM osc. coil (89) and repeat Step 13 and recheck at 90MC. If pointer reads low slightly compress FM osc. coil and repeat Steps 13 and recheck at 90MC.

After calibration of osc. coil at 90MC and with antenna coil peaked at 105MC (A18) check tracking of antenna circuit by tuning in 90MC signal and rotating A18. If turning it either way causes a decrease in signal, no further adjustments are necessary. If trimmer capacitance must be increased compress slightly the FM ant. coil (87) and repeat Step 14. Continue these two adjustments until tracking is correct. If trimmer capacitance must be decreased then slightly expand FM ant. coil and repeat Step 14. Continue these two adjustments until tracking is correct.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
13	72Ω carbon res.	high side to FM ant. terminal. Low side to chassis.	105MC (unmodulated)	FM (counter-clockwise)	105MC	DC probe to Point (A). Common to chassis	A17	Adjust for maximum deflection. Check calibration at 90MC per prealignment instructions.
14	"	"	"	"	Tune for maximum output.	"	A18	Rock tuning cap. and adjust for maximum deflection. Check tracking at 90MC per prealignment instructions.

FIG. 1

FIG. 2

WOOLAROC MODELS 3-13A, 3-14A, 3-15A, 3-16A

WOOLAROC MODELS 3-13A, 3-14A, 3-15A, 3-16A

WOOLAROC MODEL 3-15A

TRADE NAME	Woolaroc, Models 3-13A, 3-14A, 3-15A, 3-16A
SUPPLIER	Phillips Petroleum Co., Bartlesville, Okla.
TYPE SET	AC-DC Operated Superheterodyne Receiver
TUBES (FOUR)	Types, 12SA7GT Converter, 12SQ7GT Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-120 Volts AC-DC
TUNING RANGE—BROADCAST	532-1700KC RATING .22 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of sig. gen. and B-.
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2	68 MMFD	High side to lug on ant. coil (23) to which antenna hank is connected. Low side to B-.	1700KC	"	"	A3	Adjust for maximum output.
3	68 MMFD	"	1550KC	Tune for maximum output.	"	A6	" " " "

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DATE 2/48 SET #34 FOLDER #484-28

PARTS LIST AND DESCRIPTIONS

WOOLAROC MODELS 3-13A, 3-14A, 3-15A, 3-16A

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WOOLAROC PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7GT	12SA7GT	8AD	
2	Det.-AVC-AF	12SQ7GT	12SQ7GT	8Q	
3	Power Output	50L6GT	50L6GT	7AC	
4	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WOOLAROC PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	
5A	50	150		DH-2x50-150	TA-440	PRSA150-50-50	EZ5515	Filter - Red
B	50	150						" - Blue
6	.1	400		MPH-4-1	TC-1	484-.1	DT4P1	Line Filter
7	.02	600		S-6-02	TC-12	684-02	DT6S2	Output Plate Bypass
8	.005	600		S-6-005	TC-25	684-005	DT6D5	Audio Coupling
9	.002	600		S-6-002	TC-22	684-002	DT6D2	" "
10	.05	600		S-6-05	TC-15	684-05	DT6S5	Line Isolation
11	47			M0.5-45	1-M-45	1468-00005	5W5Q5	Diode RF Filter

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	WOOLAROC PART No.	IRC PART No.	CLAROSTAT PART No.	
12	2 Meg.	½	RP-16			Volume Control - SW.

RESISTORS

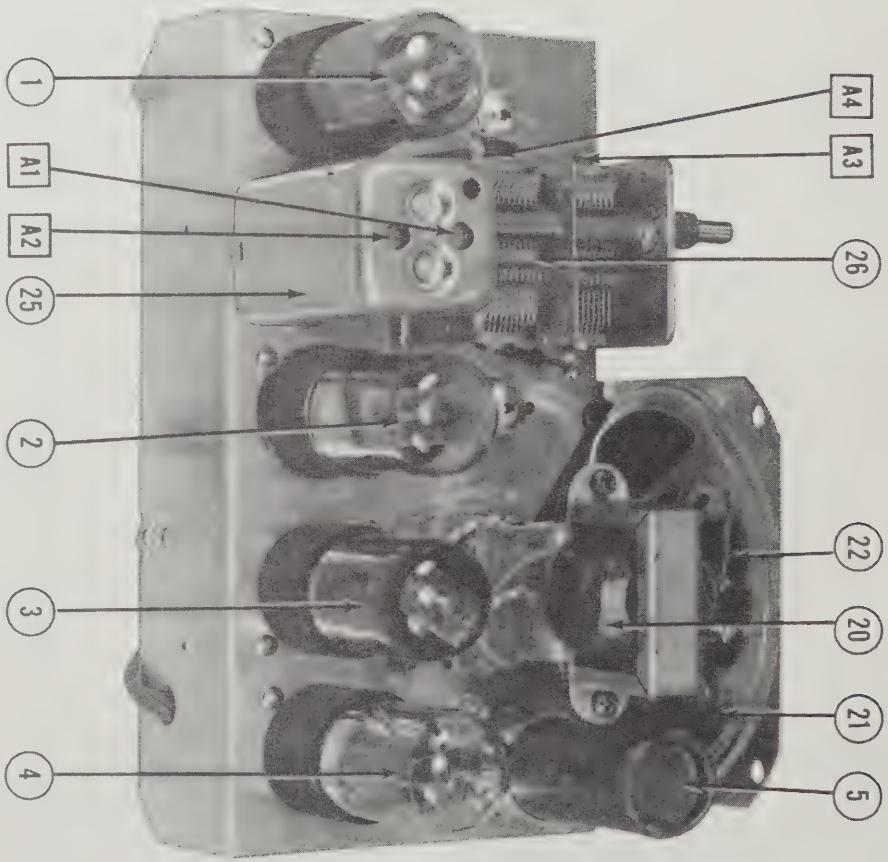
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WOOLAROC PART No.	IRC PART No.	
13	12KΩ	½		BTS-12K	Br.-Red-Or. Oscillator Grid
14	6.8 Meg.	½		BTS-6.8 Meg.	Blue-Gray-Grn. AVC Network
15	10 Meg.	½		BTS-10 Meg.	Br.-Blk.-Blue AF Grid-See Note
16	220KΩ	½		BTS-220K	Red-Red-Yl. AF Plate Load
17	330KΩ	½		BTS-330K	Or.-Or.-Yl. Output Grid
18	2200Ω	1		BTA-2200	Red-Red-Red Filter
19	47Ω	2		BW-2-47	Yl.-Vi.-Blk. Line Dropping

Note-Some models use 3.9 Meg. in this application. IRC replacement BTS-3.9 Meg.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WOOLAROC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
20	2000Ω	3.0Ω	125Ω	.6Ω	Part of EH-23A	A-3876	T22S45	A-2928	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			WOOLAROC PART No.	JENSEN PART No.	QUAM PART No.	
21	FIELD PM	VC IMP. 3.0Ω	EH23A	ST-113 Mod. P4-X	4A07	
22	CONE DIA. 4"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

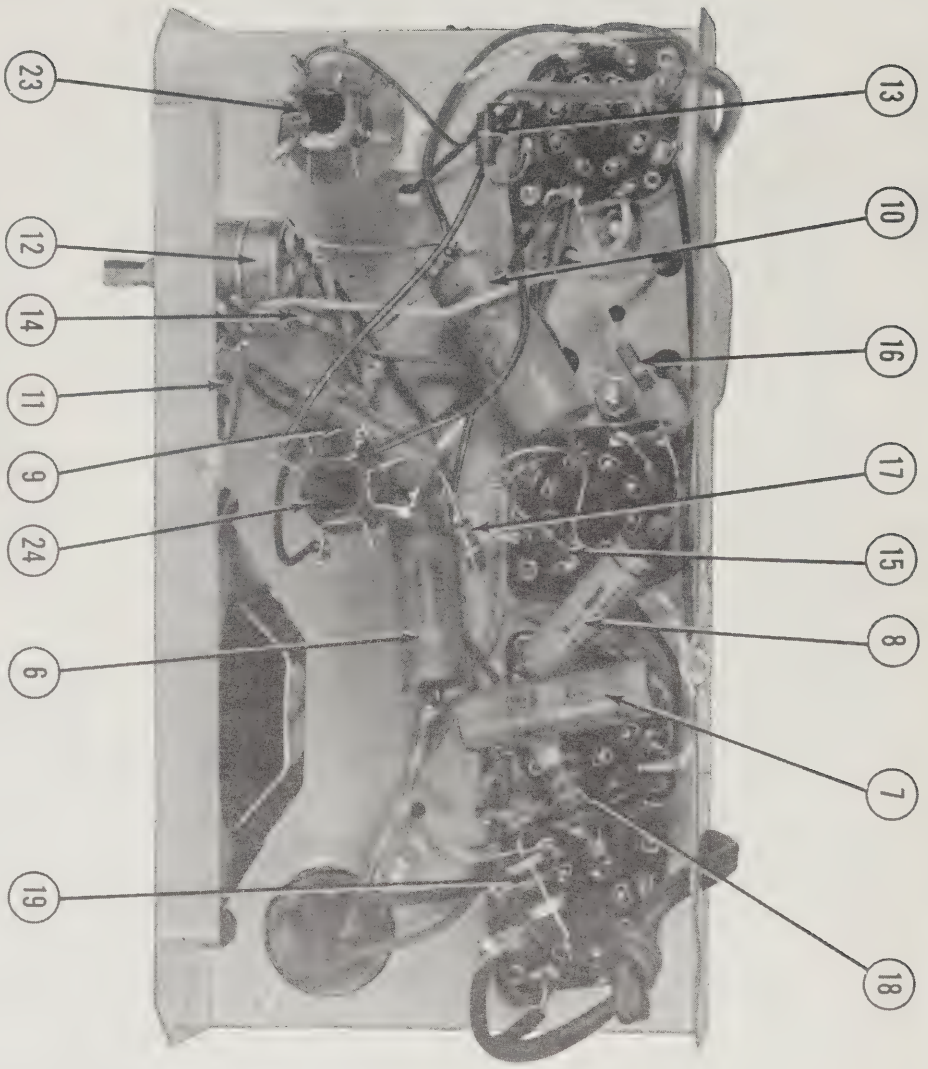
R F COILS

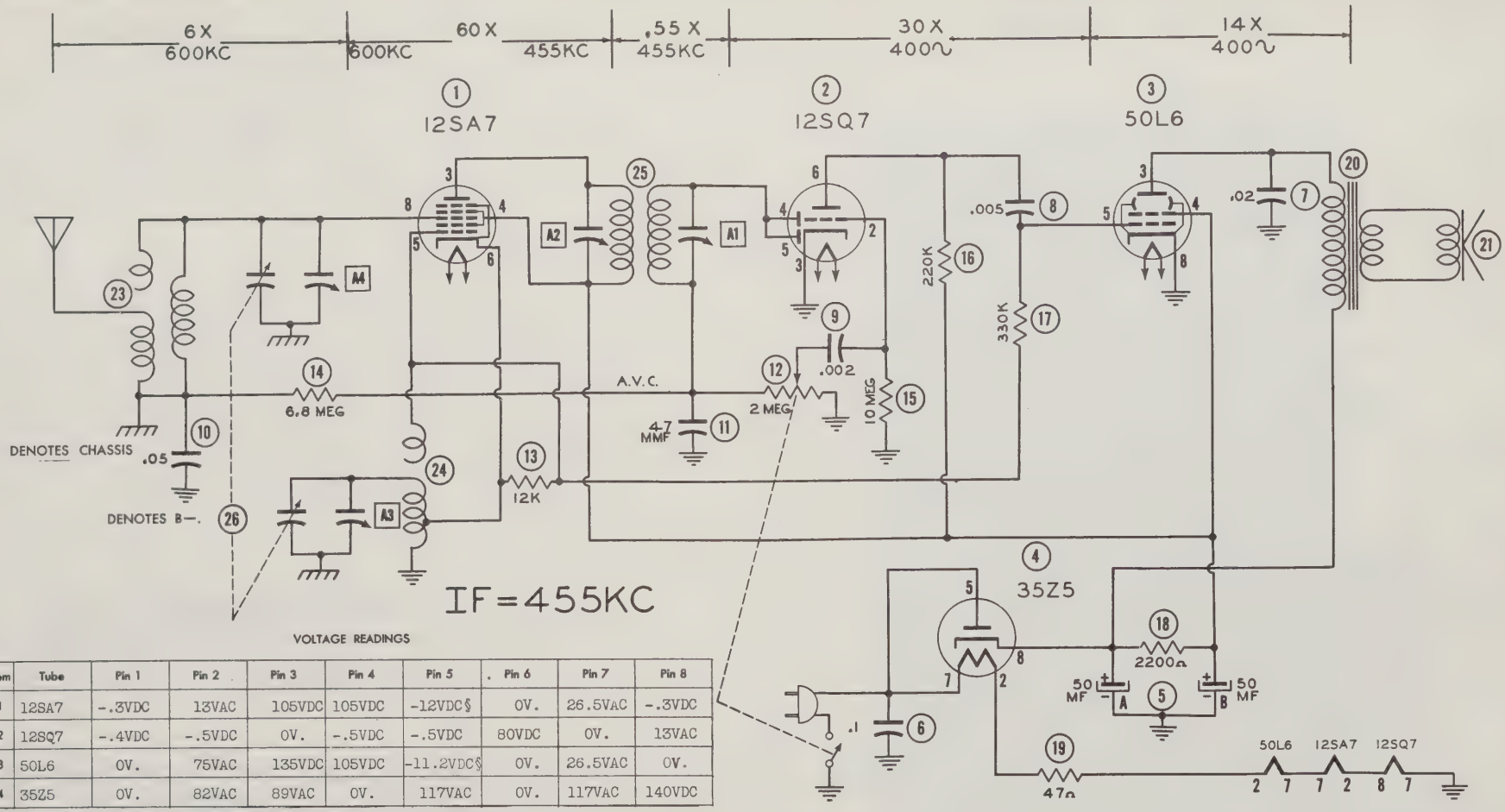
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	WOOLAROC PART No.	MEISSNER PART No.	
23	Ant. Coil	25Ω	2.8Ω	LR22	14-1026	
24	Osc. Coil		5Ω	LO15	14-1040†	†Add 50MMF from osc. grid to high side tuning cap.
25	IF Coil	19Ω	18Ω	TM2-9	16-6660	

MISCELLANEOUS

ITEM No.	PART NAME	WOOLAROC PART No.	NOTES
26	2 Gang Var. Cap.	CV24	(19-455MMF, 21-150MMF)

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	-.3VDC	13VAC	105VDC	105VDC	-12VDC§	0V.	26.5VAC	-.3VDC
2	12SQ7	-.4VDC	-.5VDC	0V.	-.5VDC	-.5VDC	80VDC	0V.	13VAC
3	50L6	0V.	75VAC	135VDC	105VDC	-11.2VDC§	0V.	26.5VAC	0V.
4	35Z5	0V.	82VAC	89VAC	0V.	117VAC	0V.	117VAC	140VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	7 Meg.	14Ω	60KΩ	60KΩ	12KΩ	.4Ω	20Ω	7 Meg.
2	12SQ7	7 Meg.	10 Meg.	0Ω	2.2 Meg.	2.2 Meg.	280KΩ	0Ω	12Ω
3	50L6	INF.	75Ω	60KΩ	60KΩ	300KΩ	INF.	26Ω	0Ω
4	35Z5	INF.	120Ω	125Ω	0Ω	150Ω	0Ω	150Ω	60KΩ

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

WOOLAROC MODELS
3-17A, 3-18A

WOOLAROC MODELS
3-17A, 3-18A

WOOLAROC MODEL 3-17A

TRADE NAME	Woolaroc, Models 3-17A, 3-18A
SUPPLIER	Phillips Petroleum Co., Bartlesville, Okla.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FIVE)	Types, 12SA7 Converter, 12SK7GT IF Amp., 12SQ7 Det.-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC
TUNING RANGE—BROADCAST	540-1620KC RATING .25 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to rear stator of tuning cap. Low side to chassis.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3	Adjust for maximum output, If isolation transformer is not used reduce dummy ant. to .001 MFD to reduce hum modulation.
2		Loop	1600KC	1600KC	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3		"	1400KC	Tune for maximum output.	"	A5	Adjust for maximum output.

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DATE 2/48 SET #34 FOLDER #484-29

PARTS LIST AND DESCRIPTIONS

WOOLAROC MODELS
c-17a, 3-18a

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		WOOLAROC PART No.	STANDARD REPLACEMENT		
1	Converter	12SA7	12SA7	8R	
2	IF Amp.	12SK7GT	12SK7GT	8N	
3	Det.-AVC-AF	12SQ7	12SQ7	8$_{\alpha}$	
4	Power Output	50L6GT	50L6GT	7AC	
5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	WOOLAROC PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.		
6A	80	150		DSB-8040-150	TA-440	PRSA150-40-	EDL4415		Filter - Red
B	40	150			UT-401	80	BR4015		" - Blue
6A	50	150	CE81	DSB-2x50-150	TA-505	PRSA150-50-	EZ5515		Alternate Filter
B	50	150				50			" "
7	.1	400		MPH-4-1	TC-1	484-.1	DT4P1		Line Filter
8	.02	600		S-6-02	TC-12	684-02	DT6S2		Output Plate Bypass
9	.008	600		S-6-01	TC-11	684-01	DT6S1		Audio Coupling
10	.008	600		S-6-01	TC-11	684-01	DT6S1		" "
11	.1	400		S-4-1	TC-1	484-.1	DT4P1		AVC Filter
12	.01	600		S-6-01	TC-11	684-01	DT6S1		Ext. Ant. Coupling
13	.01			S-6-01	TC-11	684-01	DT6S1		RF Bypass Pwr. Supply#
14	200			MO.5-32	1FM-32	1468-0002	5W5T2		AF Plate Bypass
15	220			MO.5-325	1FM-325	1468-00025	5W5T25		Diode RF Filter
16	100			MO.5-31	1FM-31	1468-0001	5W5T1		Osc. Grid Cap.-Cer.

#Not used in some models.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	WOOLAROC PART No.	IRC PART No.	CLAROSTAT PART No.	
17A	500KΩ	½	RP5-2	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	E	KSS-3	Attach to 17A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

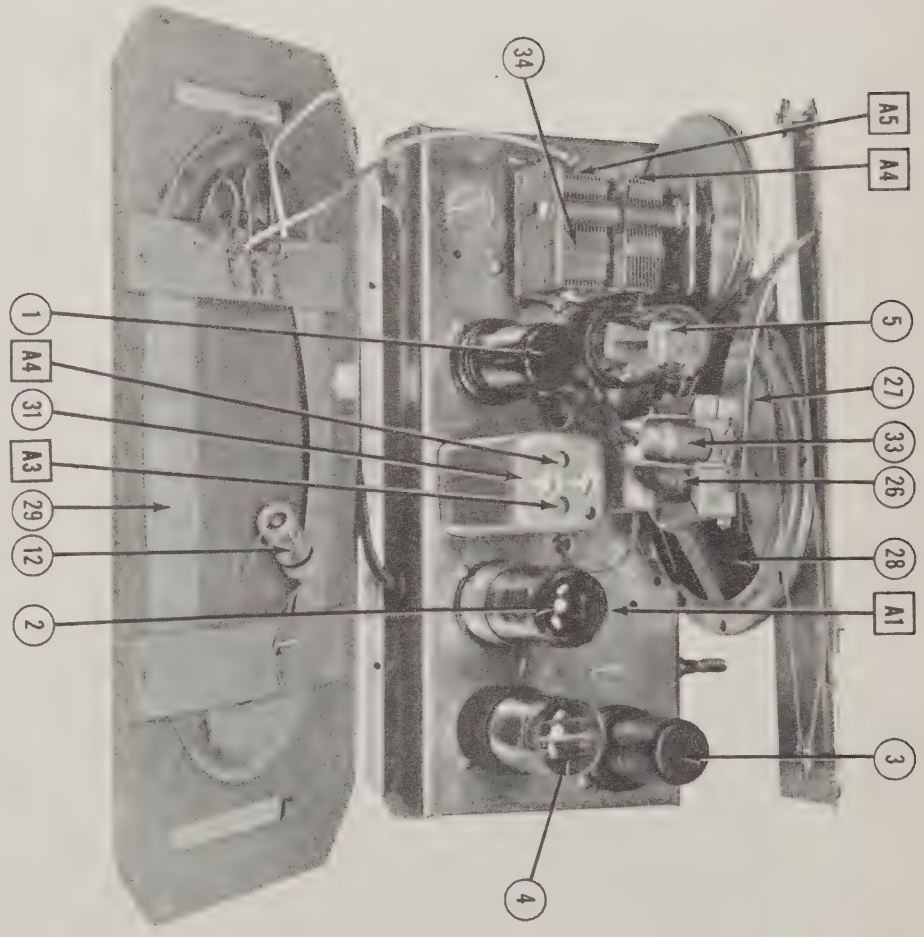
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	WOOLAROC PART No.	IRC PART No.	
18	22KΩ	½		BTS-22K	Red-Red-Or. Oscillator Grid
19	2 Meg.	½		BTS-2.2 Meg.	Red-Blk.-Grn. AVC Network
20	3.9 Meg.	½		BTS-3.9 Meg.	Or.-White-Grn. AF Grid
21	270KΩ	½		BTS-270K	Red-Vi.-Yl. AF Plate Load
22	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. Output Grid
23	120Ω	½		BW-½-120	Br.-Red-Br. Output Cathode
24	1000Ω	1		BTA-1000	Br.-Blk.-Red Filter
25	100Ω	1		BW-1-100	Br.-Blk.-Br. Rectifier Ballast-See Note

Note-Not used in all models.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		WOOLAROC PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
26	2000Ω	3.5Ω	200Ω	.8Ω		A-3876*	T22S45*	A-2923*	*Bend mounting tabs down, file out slots and mount on original bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: Woolaroc PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
27	FIELD PM	VC IMP. 3.5Ω	EH6-1	ST-105 Mod. P5-X	5A07	
28	CONE DIA. 4-5/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT			

R F COILS

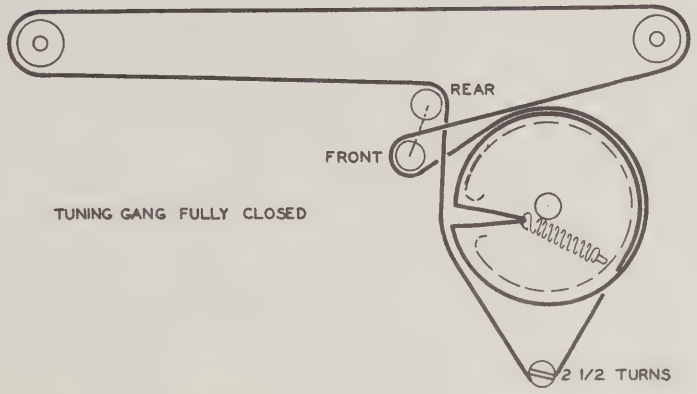
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: WOOLAROC PART No.	MEISSNER PART No.	
29	Loop Ant.	.2Ω	1Ω			
30	Osc. Coil		6Ω	LO2	14-1040	tapped @ .5Ω
31	Input IF	10.5Ω	15.5Ω	TM2-10	16-6658	
32	Output IF	120Ω	110Ω	TM2-11		

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: WOOLAROC PART No.		INSTALLATION NOTES
33	Bayonet	7.5	0.2	White			Type 51

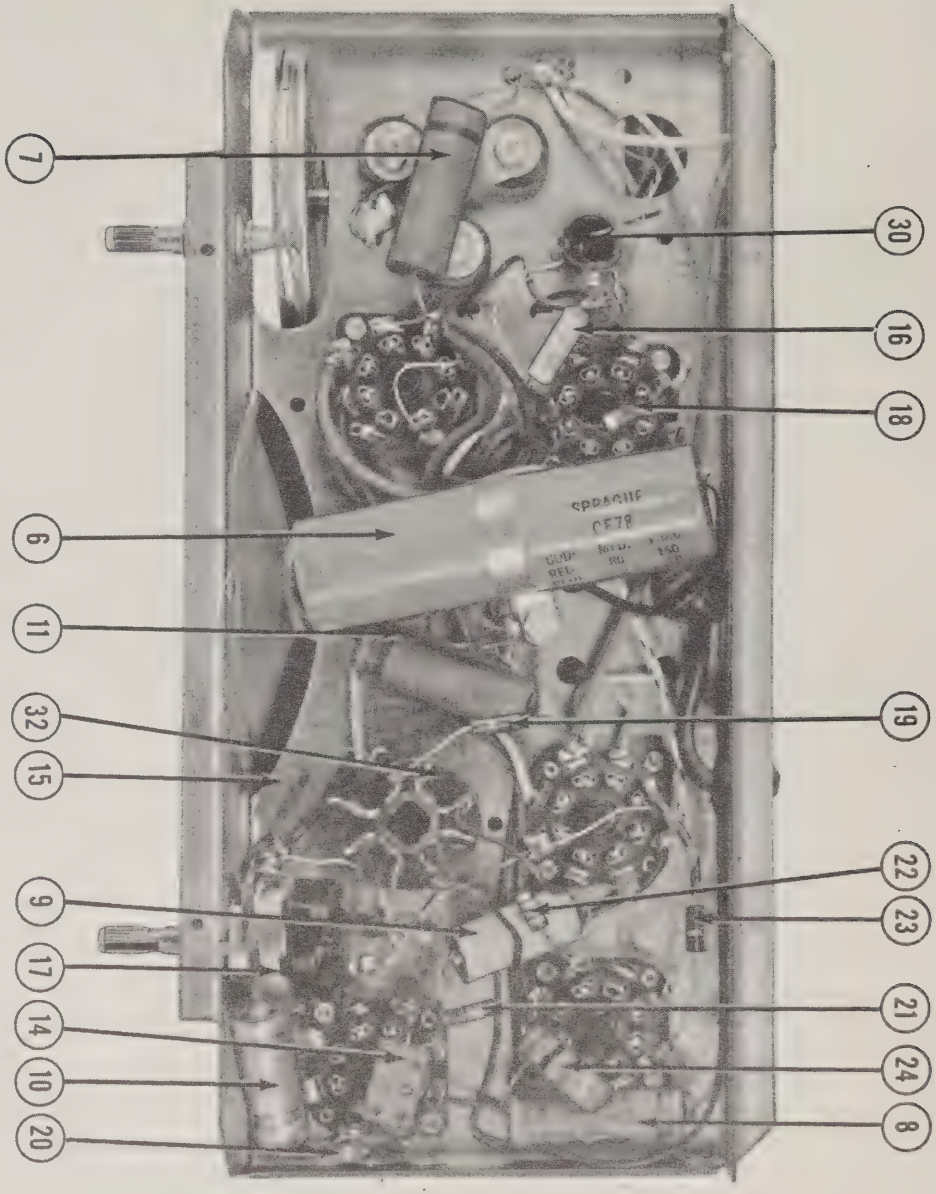
MISCELLANEOUS

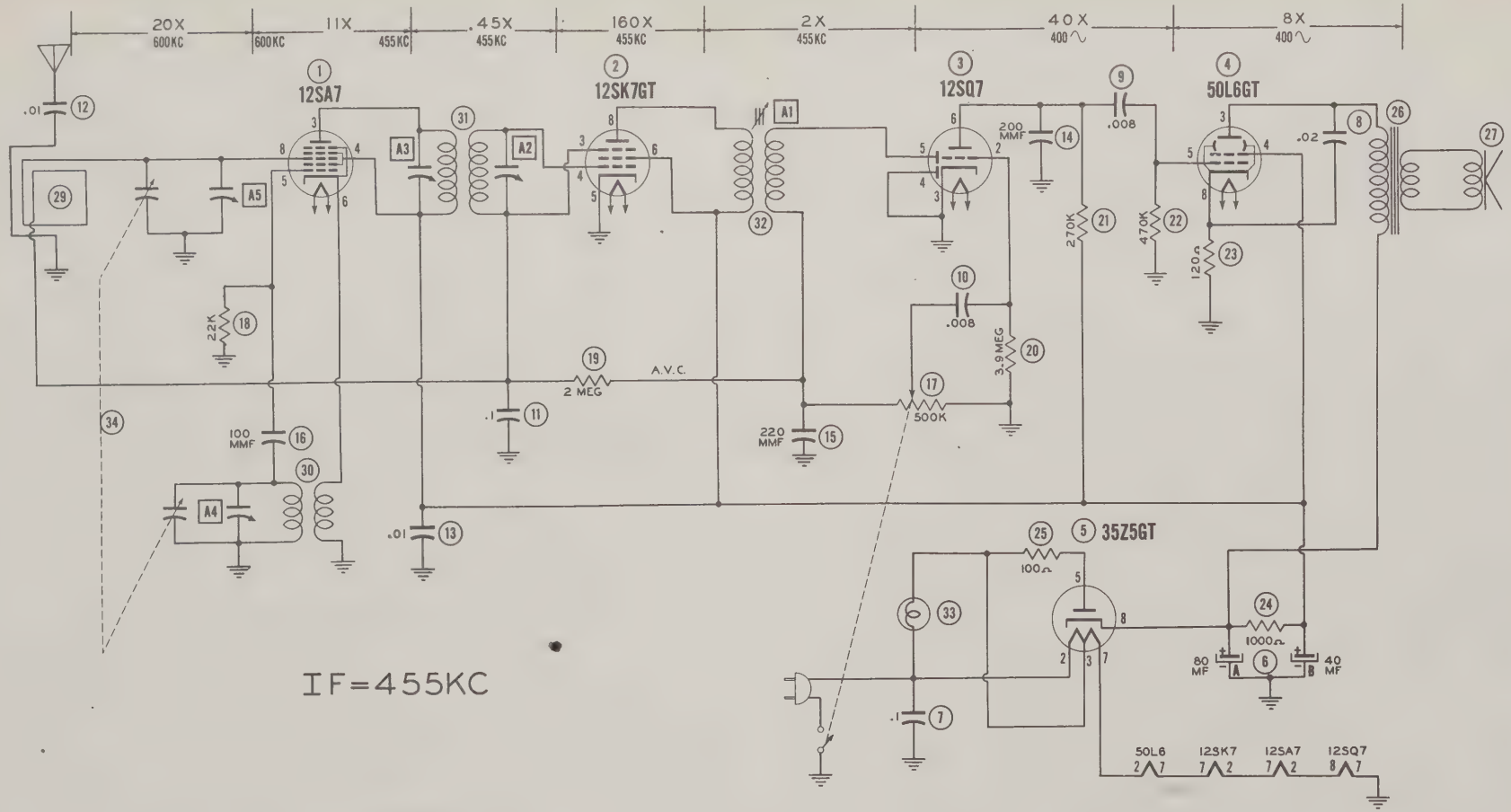
ITEM No.	PART NAME	WOOLAROC PART No.	NOTES
34	2 Gang Var. Cap.	CV-6	(24-459MTF, 30-203MTF)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0V.	12VAC	95VDC	95VDC	-10VDC§	0V.	24VAC	-.6VDC
2	12SK7	0V.	24VAC	-.6VDC	-.6VDC	0V.	95VDC	37VAC	95VDC
3	12SQ7	0V.	-.8VDC	0V.	0V.	-.4VDC	57VDC	0V.	12VAC
4	50L6	125VDC	88VAC	115VDC	95VDC	0V.	0V.	37VAC	6VDC
5	35Z5	117VAC	117VAC	115VAC	0V.	115VAC	0V.	88VAC	125VDC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7	0Ω	12Ω	100KΩ	100KΩ	20KΩ	.6Ω	24Ω	2.5 Meg.
2	12SK7	0Ω	24Ω	2.5 Meg.	2.5 Meg.	0Ω	100KΩ	38Ω	100KΩ
3	12SQ7	0Ω	4 Meg.	0Ω	0Ω	500KΩ	370KΩ	0Ω	12Ω
4	50L6	100KΩ	87Ω	100KΩ	100KΩ	460KΩ	INF.	38Ω	120Ω
5	35Z5	115Ω	115Ω	112Ω	INF.	112Ω	0Ω	87Ω	100KΩ

§TAKEN WITH VACUUM TUBE VOLTMETER.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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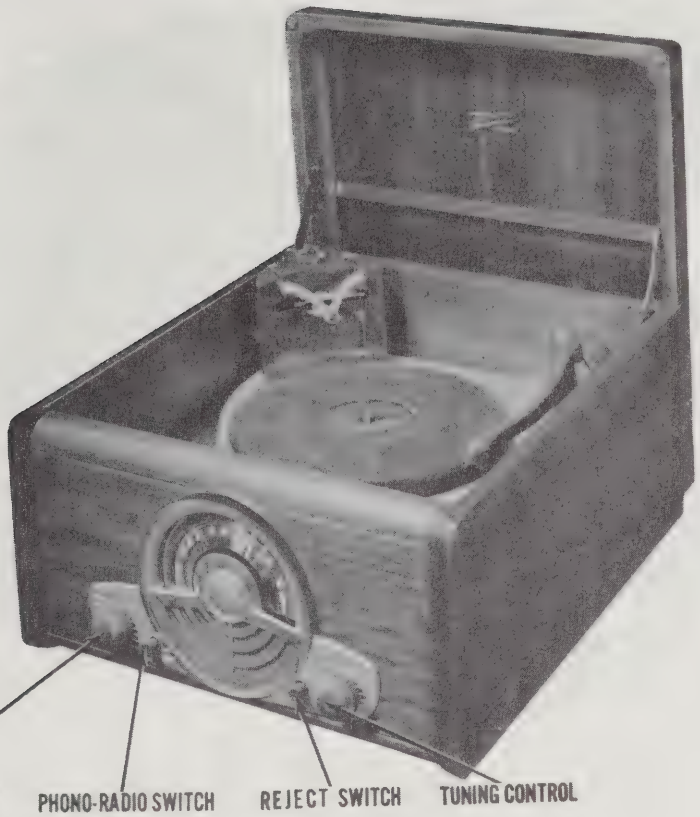
484-29

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ZENITH MODEL
6R886 (Ch.6E02)



ZENITH MODEL
6R886 (Ch.6E02)

ZENITH MODEL 6R886 (Ch. 6E02)

TRADE NAME	Zenith, Model 6R886 (Ch. 6E02)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.
TYPE SET	AC Operated Combination Phono-Radio Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 12SA7GT Converter, 12SK7 IF Amp., 6AQ6 Det.-AVC-AF, 6C4 Phono Pre-Amp., 50B5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	535-1620KC RATING .24 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to reference dot on left edge of speaker.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.5 MFD	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2		Loop	1600KC	1st reference line on right edge of speaker.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Trimmer opposite A5 is a factory adjustment and normally need not be changed.
3		"	1400KC	Tune for maximum output.	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis Indiana

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DATE 2/48 SET #34 FOLDER #484-30

PARTS LIST AND DESCRIPTIONS

ZENITH MODEL
6R386 (Ch. 6E02)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter	12SA7GT	12SA7GT	8AD	
2	IF Amp.	12SK7	12SK7	8N	
3	Det.-AVC-AF	6AQ6	6AQ6	7BT	
4	Phono Pre-Amp.	6C4	6C4	6BG	
5	Power Output	50B5	50B5	7BZ	
6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ZENITH PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150	22-1707	DY-419†	EL-340		UP44315C	◓ Filter
B	40	150						■ "
C	40	150						▲ "
D	30	150		M-30-150	UT-301		BR4015	"
8	.05	400	22-1017	MPH-4-05	TC-15	484-05	DT4S5	Line Filter
9	.02	400	22-188	S-4-02	TC-12	484-02	DT4S2	RF Coupling
10	.02	400	22-188	S-4-02	TC-12	484-02	DT4S2	Phono Osc. Grid Cap.
11	.01	400	22-243	S-4-01	TC-11	484-01	DT4S1	Output Plate Bypass
12	.05	400	22-1017	S-4-05	TC-15	484-05	DT4S5	Feedback
13	.004	600	22-448	S-6-004	TC-24	684-005	DT6D4	Audio Coupling
14	.01	600	22-196	S-6-01	TC-11	684-01	DT6S1	" "
15	.01	400	22-243	S-4-01	TC-11	484-01	DT4S1	" "
16	.001	600	22-1444	S-6-001	TC-21	684-001	DT6D1	IF Screen Bypass
17	.05	200	22-178	S-4-05	TC-15	484-05	DT2S5	Line Isolation
18	.05	200	22-178	S-4-05	TC-15	484-05	DT2S5	AVC Filter
19	.05	200	22-178	S-4-05	TC-15	484-05	DT2S5	Conv. Decoupling
20	50	500	22-1532	MO.5-45	1FM-45	1468-00005	5W5Q5	Phono Osc. Feedback
21	25	500	22-127	MO.5-425	1FM-425	1468-000025	5W5Q25	" " "
22	500	500	22-716	MO.5-35	1FM-35	1468-0005	5W5T5	Tone Compensation
23	200	500	22-953	MO.5-32	1FM-32	1468-0002	5W5T2	Diode RF Filter
24	500	500	22-716	MO.5-35	1FM-35	1468-0005	5W5T5	RF Bypass
25	100	500	22-162	MO.5-31	1FM-31	1468-0001	5W5T1	Osc. Grid Cap.

†Omit bypass section.

CONTROLS

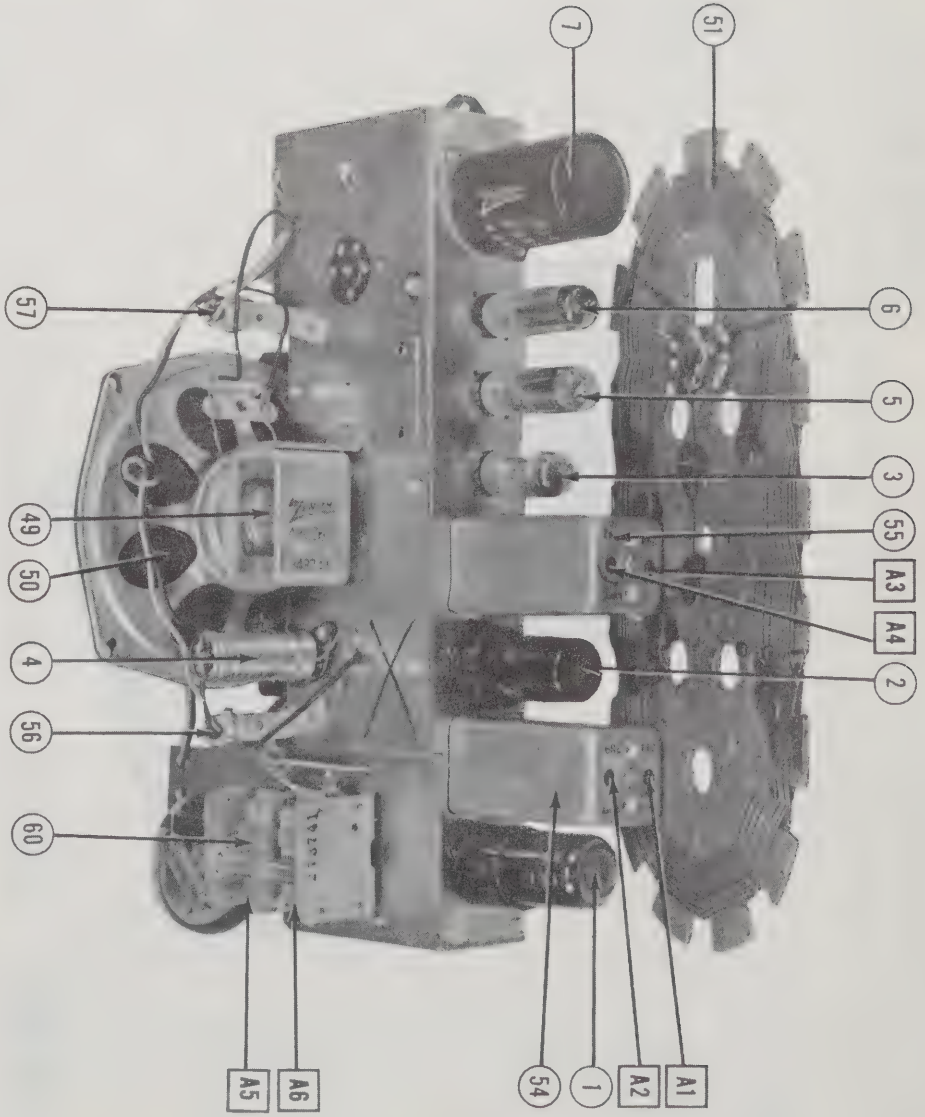
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
26A	2.5 Meg.	½	63-1555		AM-83-S	Volume Control
B	Shaft		Not Req.		KSS-3	Attach to 26A per instructions
C	Switch		" "		SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	IDENTIFICATION CODES
27	220KΩ	½	63-1684	BTS-220K	Red-Red-Yl. Line Isolation
28	10KΩ	½	63-1828	BTS-10K	Br.-Blk.-Or. Oscillator Grid
29	15 Meg.	½	63-1961	BTS-15 Meg.	Br.-Grn.-Blue AVC Network
30	2.2 Meg.	½	63-1926	BTS-2.2 Meg.	Red-Red-Grn. AVC Network
31	2.2 Meg.	½	63-1926	BTS-2.2 Meg.	Red-Red-Grn. " "
32	270KΩ	½	63-1887	BTS-270K	Red-Vi.-Yl. IF Screen Load
33	10KΩ	½	63-1829	BTS-10K	Br.-Blk.-Or. Voltage Dropping
34	470KΩ	½	63-1898	BTS-470K	Yl.-Vi.-Yl. Diode Load
35	820Ω	½	63-1782	BTS-820	Gray-Red-Br. Feedback
36	4.7 Meg.	½	63-1940	BTS-4.7 Meg.	Yl.-Vi.-Grn. AF Grid
37	470KΩ	½	63-1898	BTS-470K	Yl.-Vi.-Yl. AF Plate Load
38	470KΩ	½	63-1898	BTS-470K	Yl.-Vi.-Yl. Output Grid
39	150Ω	½	63-686	BW-½-150	Br.-Grn.-Br. Output Cathode
40	4700Ω	½	63-1814	BTS-4700	Yl.-Vi.-Red Feedback
41	680Ω	1	63-1221	BTA-680	Blue-Gray-Br. Filter
42	100Ω	1	63-1220	BW-1-100	Br.-Blk.-Br. Filter
43	22Ω	½	63-1219	BW-½-22	Red-Red-Blk. Surge Limiter
44	1 Meg.	½	63-1908	BTS-1 Meg.	Br.-Blk.-Grn. Phono Osc. Grid
45	47KΩ	½	63-1856	BTS-47K	Yl.-Vi.-Or. Phono Osc. Plate Load
46	47KΩ	½	63-1856	BTS-47K	Yl.-Vi.-Or. Phono Coupling
47	1000Ω	½		BTS-1000	Br.-Blk.-Red Decoupling-See Note

Note-Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ZENITH PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
48	2000Ω	3.3Ω	185Ω	.75Ω	35-1025	A-3876‡	T22345‡	A-2928‡	‡Drill new mounting holes.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ZENITH PART No.	JENSEN PART No.	QUAM PART No.	
49	FIELD PM	VC IMP. 3.3Ω	49-602		52A1*	*Fabricate new mounting bracket.
50	CONE DIA. 5-1/8"	VC DIA. 1/2"	NOT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.			

R F COILS

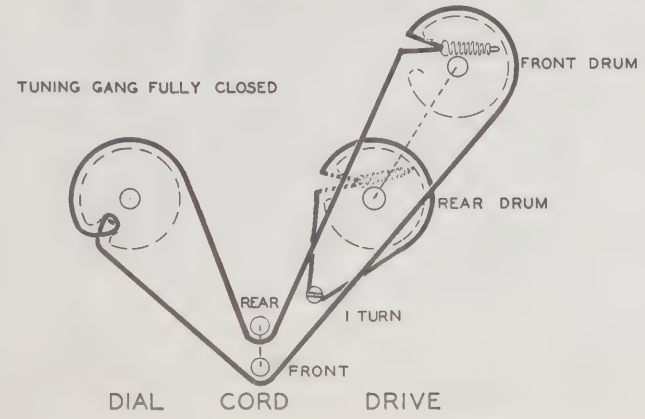
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	
51	Loop Ant.	0Ω	1Ω	S13817		
52	Osc. Coil	.5Ω	5.9Ω	S13799	14-1040	
53	" "		2Ω	S12603		Phono Pre-Amp.
54	Input IF	24Ω	23.8Ω	95-919	16-6658	
55	Output IF	39.8Ω	39.8Ω	95-906	16-6660	

DIAL LIGHT

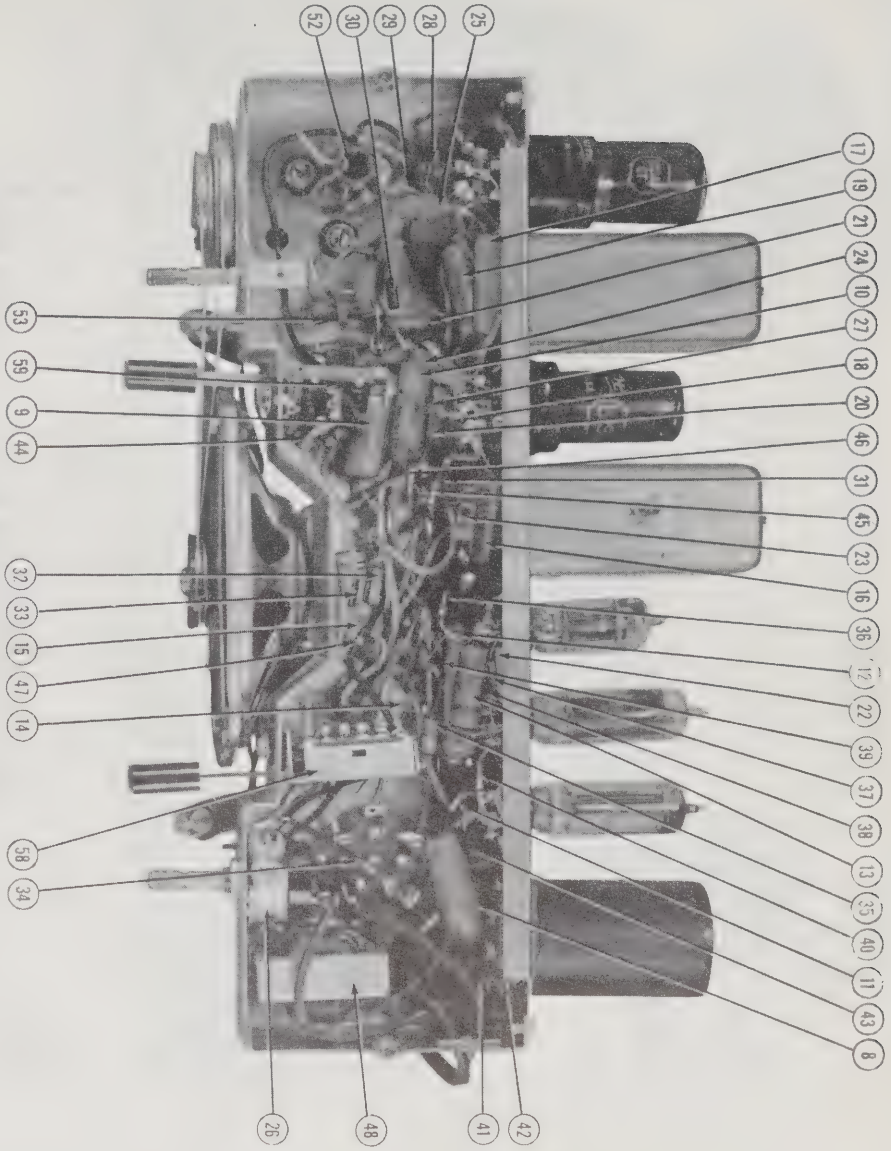
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ZENITH PART No.		
56	Bayonet	3.2	0.16	White	100-90		Type 1490
57	"	3.2	0.16	"	100-90		" "

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
58	Switch	85-421	Radio-Phono
59	"	85-422	Reject
60	2 Gang Var. Cap.	22-1657	(25-469MMF, 33-200MMF)
	Dial Pointer	S13829	(Includes pulley assby)
	Dial Scale	26-387	

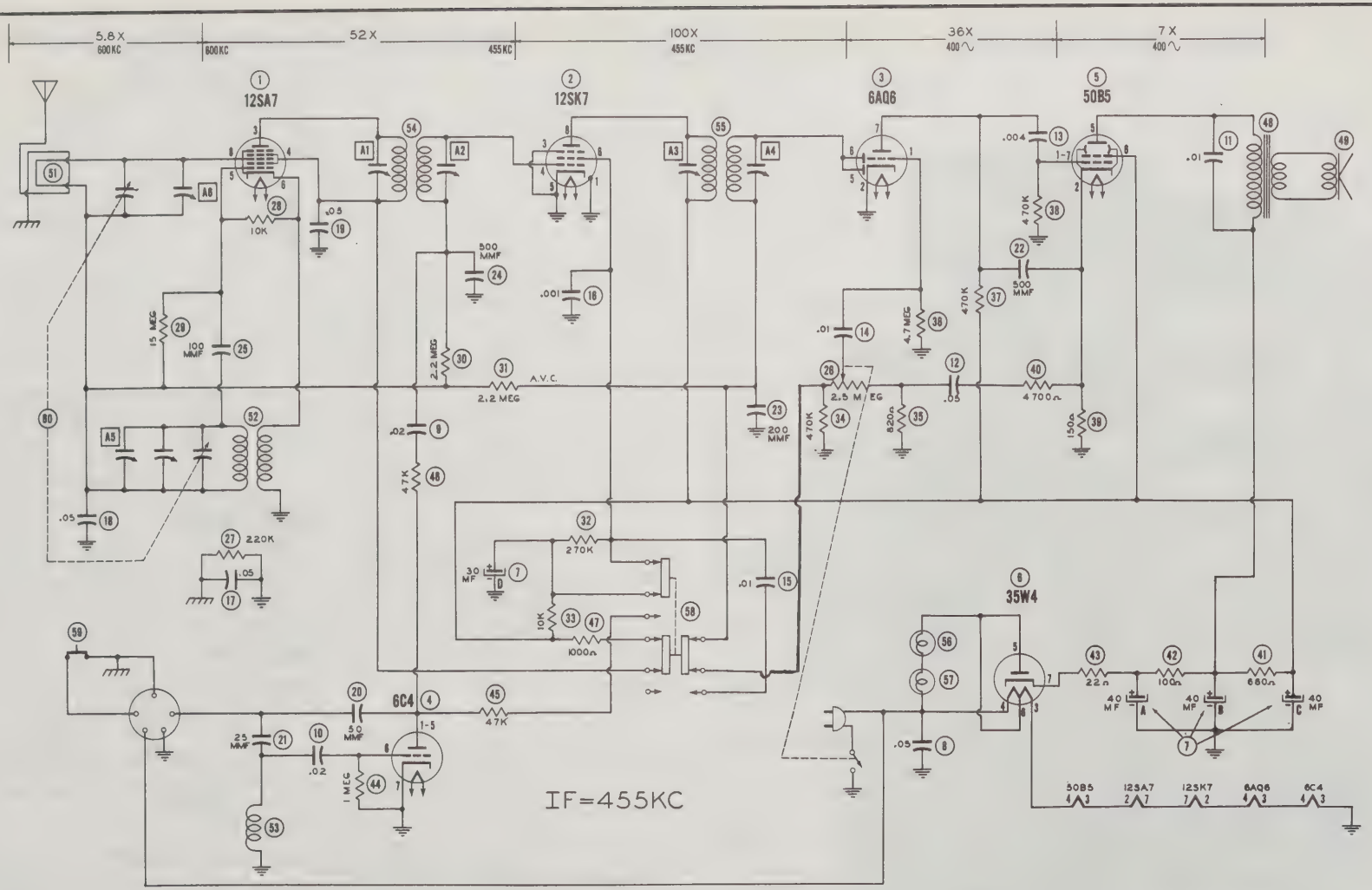


CHASSIS—BOTTOM VIEW



ZENITH MODEL 6R886 (Ch. 6E02)

ZENITH MODEL 6R886 (Ch. 6E02)



*RADIO-PHONO SWITCH IN PHONO POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	0V.	38VAC	82VDC	82VDC	-6.5VDC§	0V.	25VAC	-.5VDC
2	12SK7	0V.	12.5VAC	0V.	-.6VDC	0V.	67VDC	25VAC	94VDC
3	6AQ6	-.6VDC	0V.	6.8VAC	12.5VDC	-.4VDC	-.4VDC	38VDC	-
* 4	6C4	28VDC	0V.	0V.	6.8VAC	28VDC	-.4VDC	0V.	-
5	50B5	0V.	6VDC	38VAC	87VAC	103VDC	94VDC	0V.	-
6	35W4	6VDC	112VDC	87VAC	117VAC	115VAC	115VAC	120VDC	-

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	12SA7GT	200KΩ	38Ω	100KΩ	100KΩ	10KΩ	.5Ω	25Ω	2.2 Meg.
2	12SK7	200KΩ	13Ω	0Ω	4.4 Meg.	0Ω	110KΩ	25Ω	100KΩ
3	6AQ6	5 Meg.	0Ω	7Ω	13Ω	360KΩ	360KΩ	570KΩ	-
* 4	6C4	160KΩ	INF.	0Ω	7Ω	160KΩ	1 Meg.	0Ω	-
5	50B5	470KΩ	150Ω	38Ω	90Ω	100KΩ	100KΩ	470KΩ	-
6	35W4	5KΩ	100KΩ	90Ω	120Ω	117Ω	117Ω	100KΩ	-

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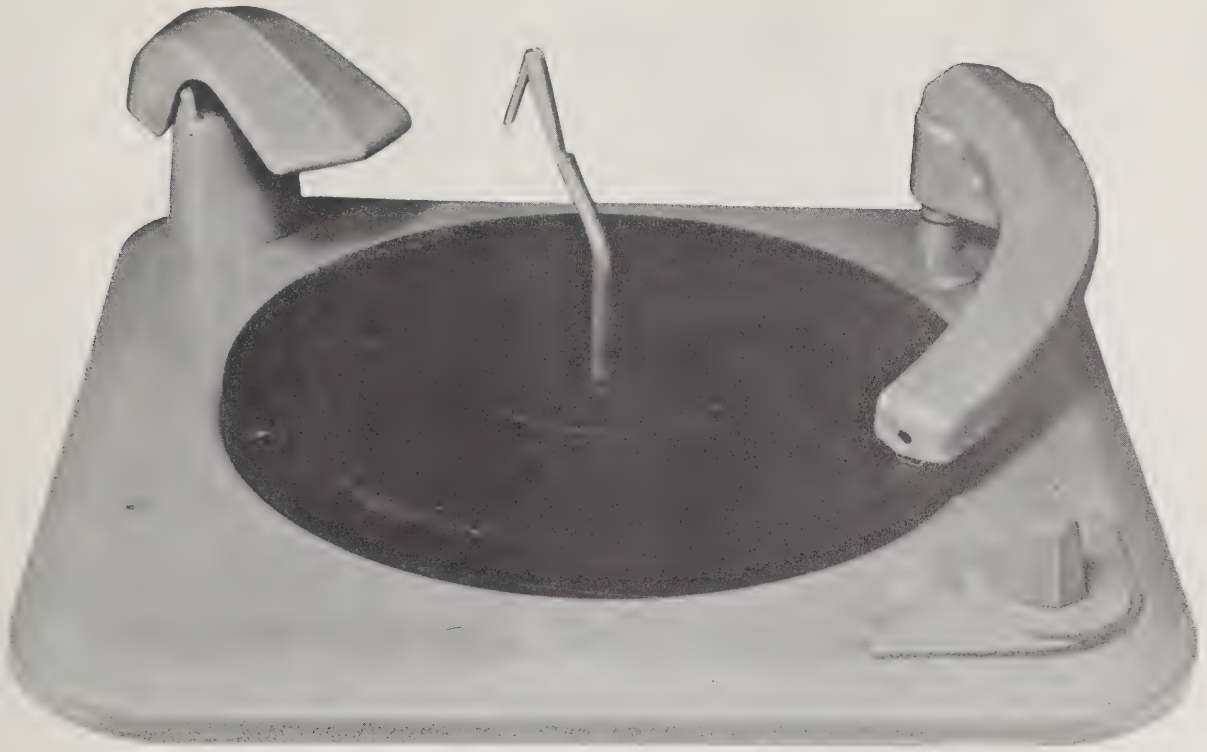
484-30

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.



TOP VIEW

GENERAL INFORMATION

The Belmont C-9 changer is designed to play automatically up to ten 12-inch records or twelve 10-inch records. The last record will be repeated until the changer is turned off. Manual operation is provided for single records, home recordings, or odd-size records.

Manufactured by: BELMONT RADIO CORPORATION, 5921 West Dickens Avenue, Chicago 39, Ill.

MANUAL OPERATION

For manual operation raise the hold-down clamp (1) and the 10-inch record ejector and shelf (3). Place a record on the turntable and turn the control knob (23) to "Manual" position. With the control knob in this position, the release lever assembly (26) is blocked by the stud on the top surface of the tripping arm assembly (47), thereby preventing the changer from cycling. Place the pickup arm on the record. When the record has finished playing, move the arm out to rest position and turn the changer off. Remove the record.

AUTOMATIC OPERATION

Place a stack of records on the step of the center post, permitting them to rest on the housing of the push-off assembly (4) for 12-inch records and on the 10-inch record ejector and shelf (3) for 10-inch records. Lower the hold-down clamp (1) to the records. Turn the control knob to "Reject" and release. The changer will now play automatically the entire stack of records. On completion of the last record, allow the changer to go through its cycle. Raise the arm from the records and move it out clear of the records. Turn the control knob to "Off" and remove the records from the turntable.

Any record may be rejected while playing by turning the control knob to "Reject" and releasing.

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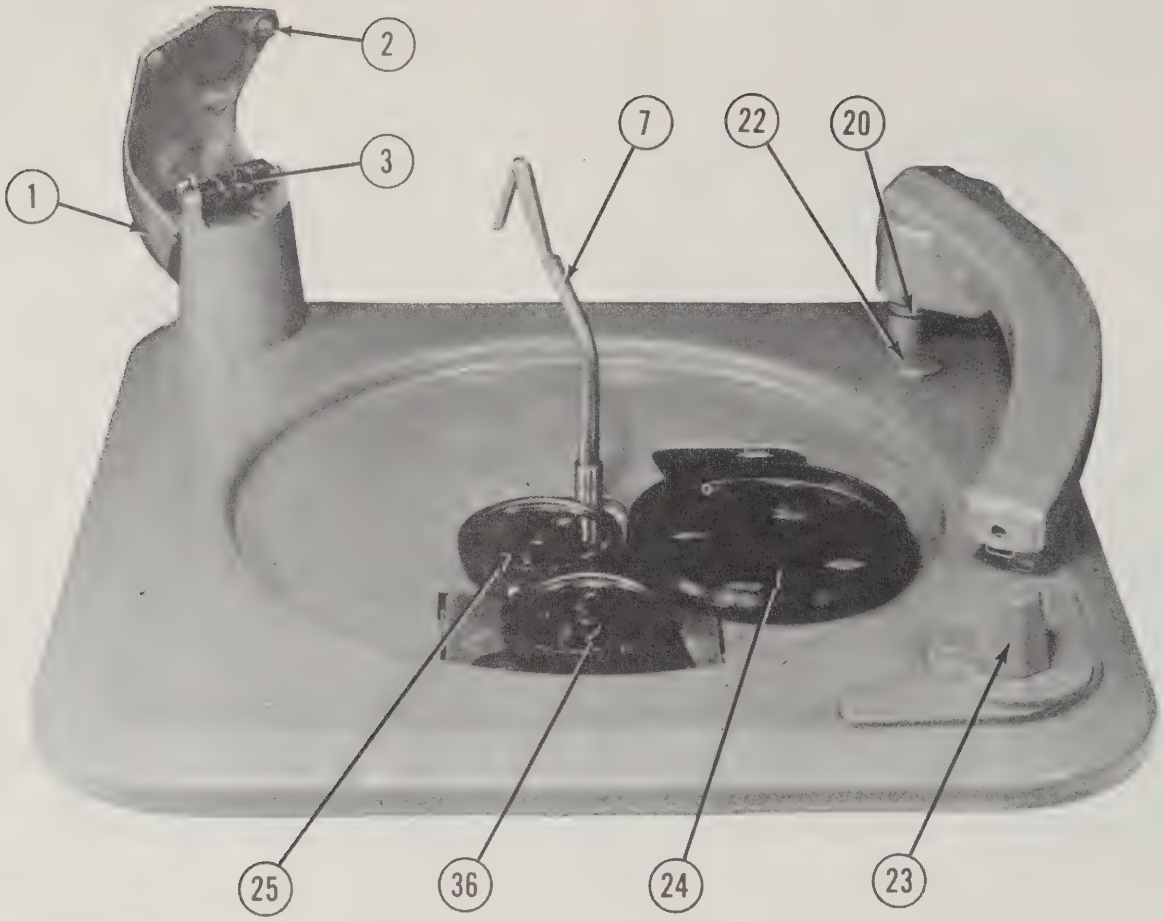
BELMONT
MODEL C-9

BELMONT
MODEL C-9



TOP VIEW LESS TURNTABLE

CHANGE CYCLE

The change cycle may be started by one of three means:

1. By turning the control knob (23) to the reject position. This action will pivot the tripping arm assembly (47) against the position tripping lever (66), causing the finger of the tripping lever to move against the stud of the tripping lever assembly (65). This action moves the stud of the tripping lever assembly away from the step of the small cam (A), which is pressed on the top of the main cam (73). The mechanism is now tripped and the release lever assembly (26), now free to move, is pivoted by the spring (62); thus the idler wheel (25) is brought in contact with the drive wheel (36), the changer drive assembly (24) is put in motion, and the change cycle is started.

2. By the oscillation of the pickup arm in the eccentric groove of the record, or any other backward movement of the pickup arm as the needle comes within approximately 3½" of the center of the record. This backward action causes the serrated end of the pickup arm guide assembly (69) to straighten the pawl (72) of the tripping lever assembly (65), thereby freeing the release lever assembly (26) and starting a new change cycle.

3. Positive tripping action takes place when the needle of the pickup arm comes within 1⅝" to 1¾" from the center of the turntable. This action is brought about by the adjusting screw (70) of the pickup arm guide assembly (69) striking the positive tripping lever (66), thus tripping the mechanism to start the change cycle.

When the changer is tripped, the idler wheel (25) makes contact with the drive wheel (36); thereby, the cam assembly (73) is rotated through the change cycle by the changer drive assembly (24), which is in positive frictional position with the idler wheel.

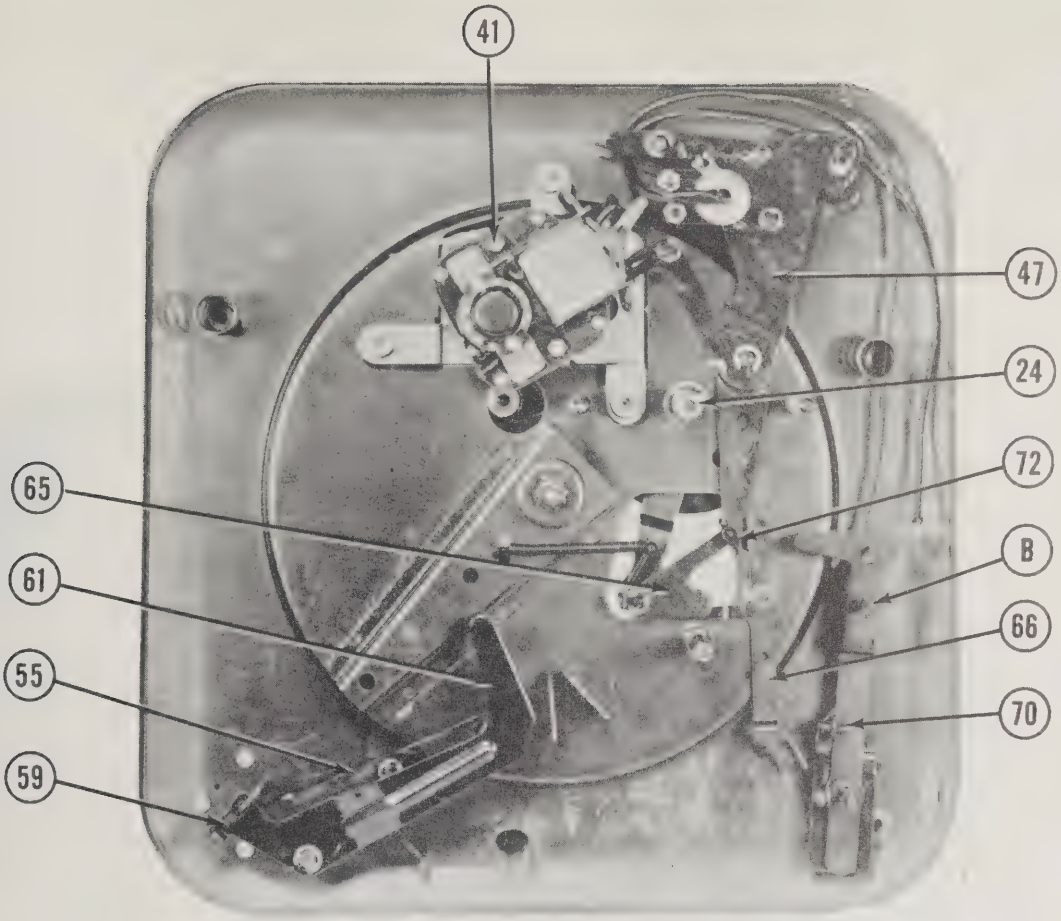
As the cam assembly is rotated, the pickup arm lift post (15) rides up the incline of the cam, raising the pickup arm off the record. The cam track (C) of the main cam moves against the stud (B) of the pickup arm guide assembly (69), swinging the pickup arm out clear of the record.

The stud of the indexing cam slide (D) of the cam assembly (73) rides into the "V" shaped portion of the selector bar assembly (55), thus positioning the cam slide for 10-inch or 12-inch set down. For a 12-inch record the selector bar assembly (55) is in a forward position, thus moving the cam slide in. For a 10-inch record setting the 10-inch record ejector and shelf (3) is in a horizontal position; this pivots the size change lever (5), which, in turn, pulls the selector bar assembly (55) away from its original position. This action moves the cam slide out.

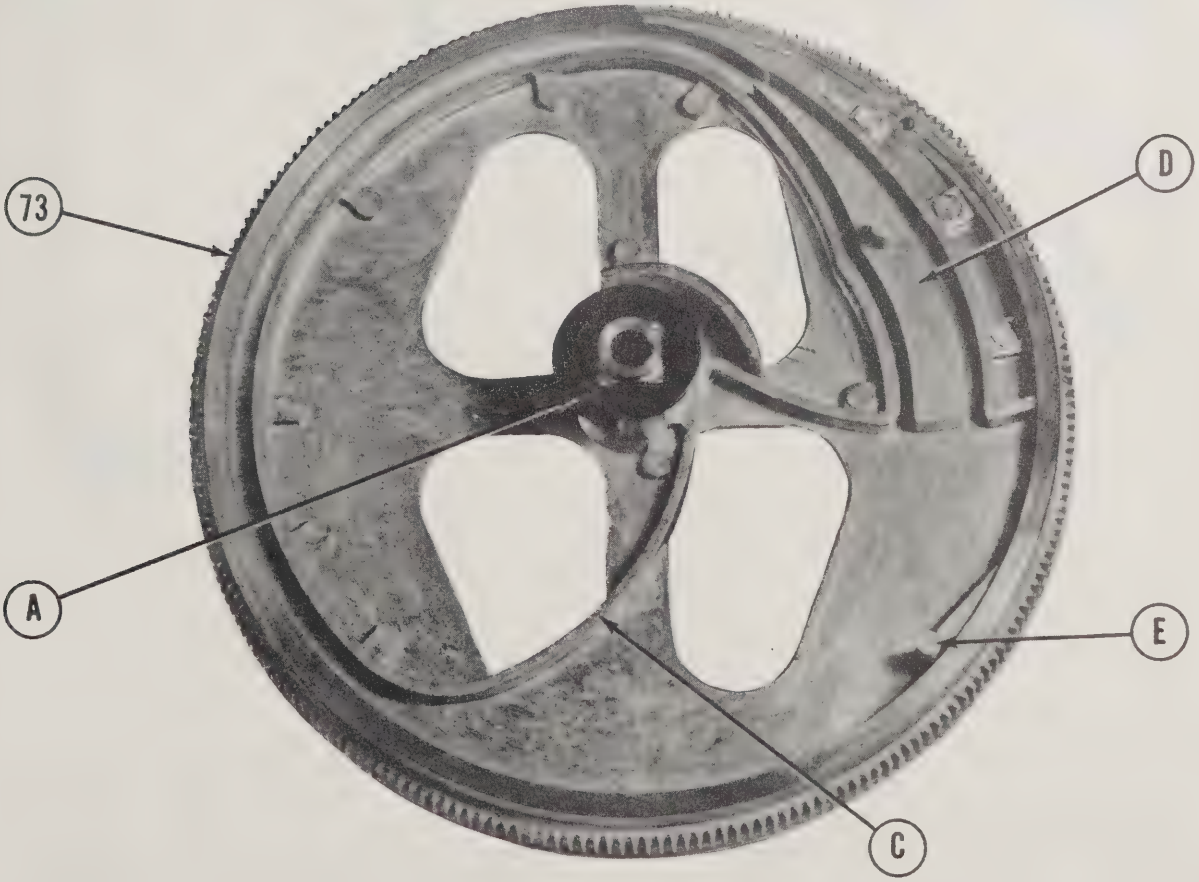
Stud (E) of the cam assembly (73) moves against the release arm assembly (61), which, in turn, actuates the ejector lever (6), causing a record to be dropped to the turntable.

The stud of the pickup arm guide assembly now moves into the track made by the positioning of the cam slide, thereby moving the pickup arm in, positioning it for set down.

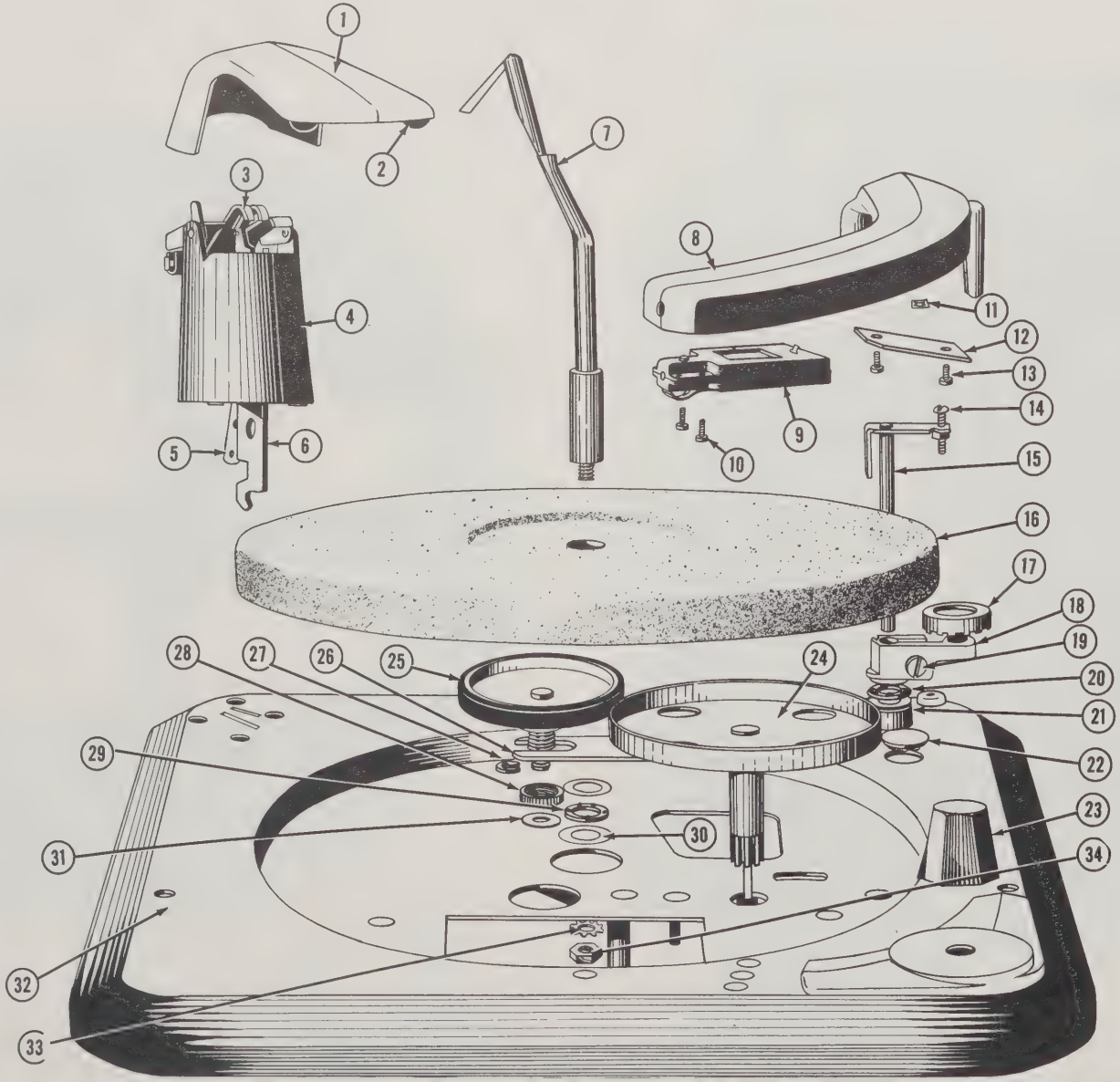
The pickup arm lift post now rides down the incline of the main cam lowering the pickup arm to the record. This completes the change cycle.



BOTTOM VIEW LESS CAM ASSEMBLY



TOP VIEW CAM ASSEMBLY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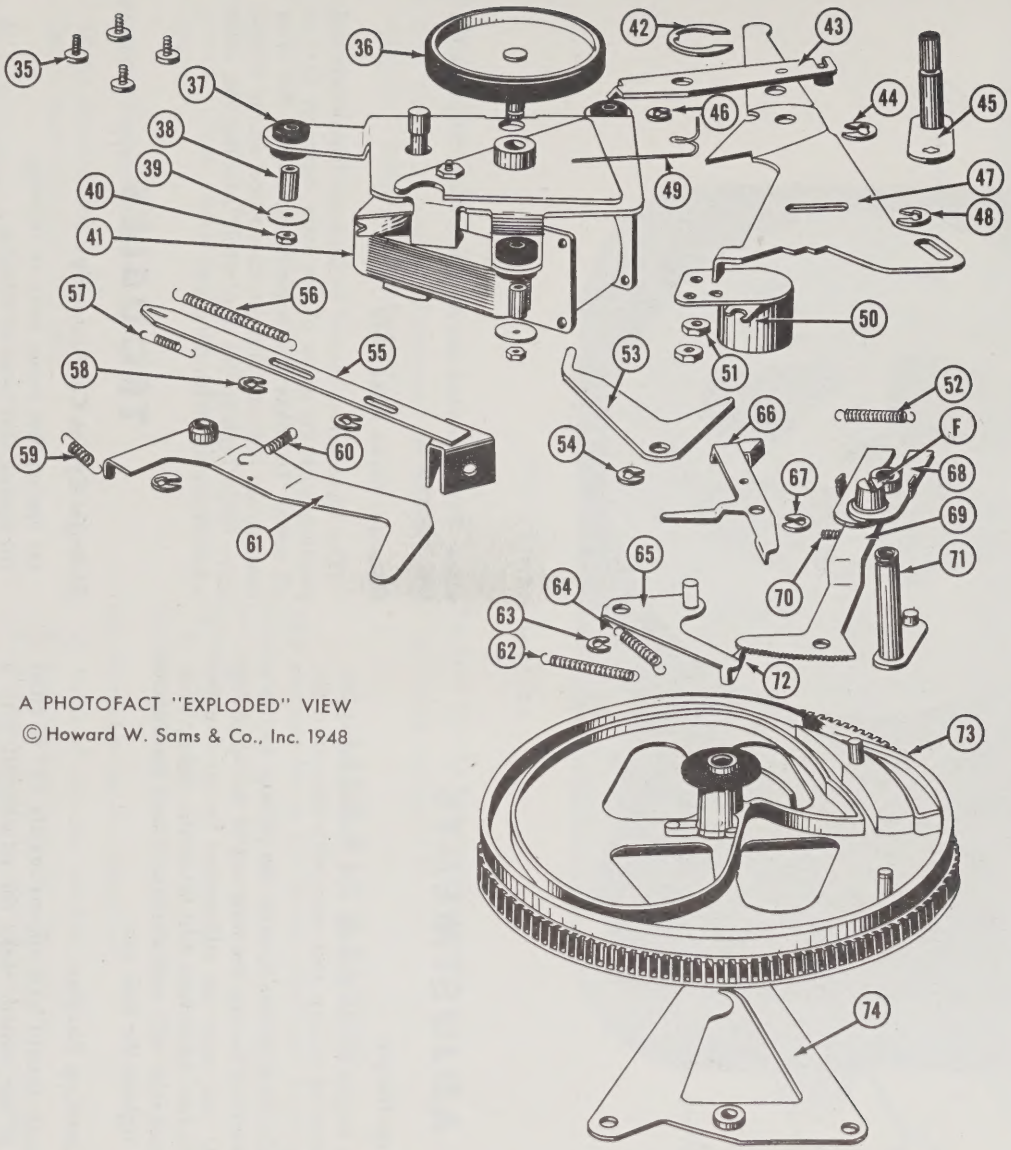

A PHOTOFACT "EXPLODED" VIEW

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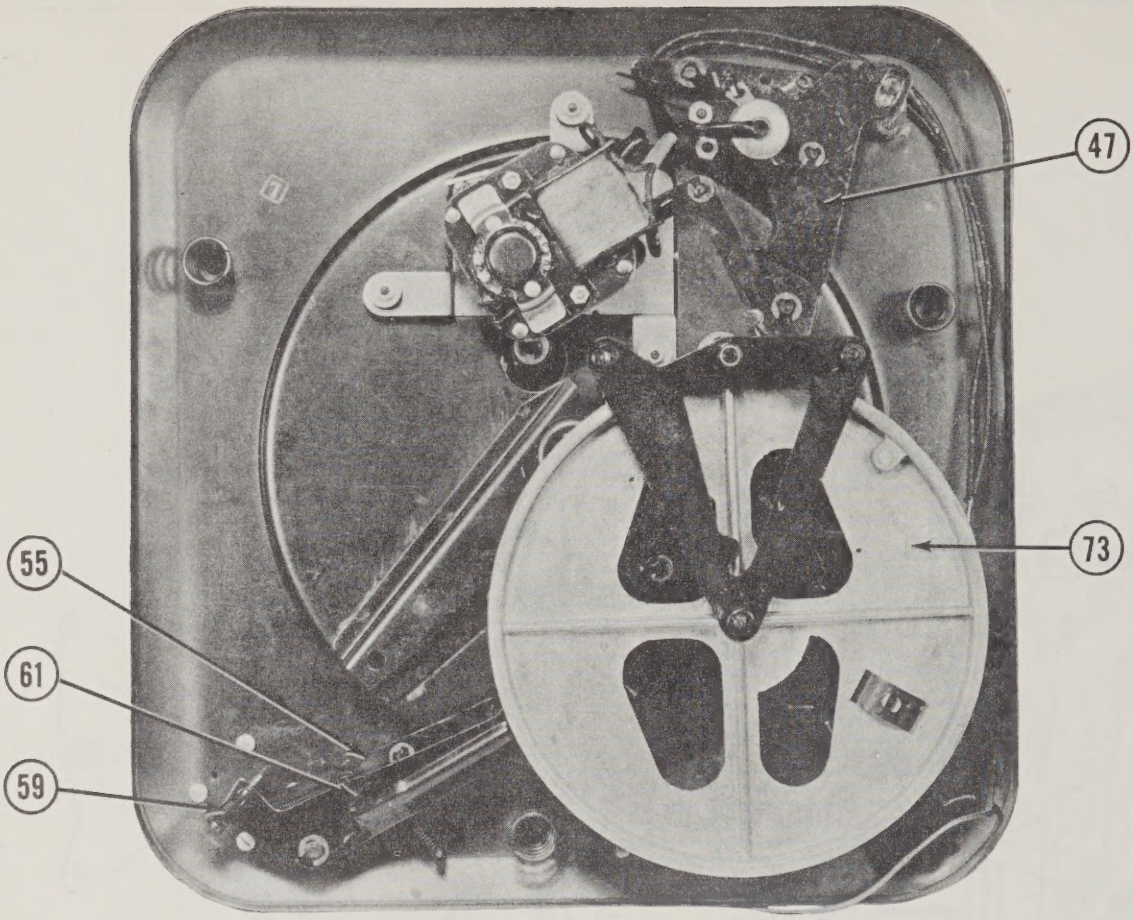


BOTTOM VIEW

ADJUSTMENTS

Pickup Arm Height

Correct height of the pickup arm should be as follows: Bottom of pickup arm even with the top of the turntable.

To make the adjustment, raise the pickup arm to a vertical position. Loosen the lock nut of the adjusting screw (14) and make the adjustment by turning the adjusting screw. Clockwise will lower the pickup arm. Counterclockwise will raise the arm. Check the adjustment and tighten the lock nut.

Needle Landing Position

The needle should land approximately ⅛" in from the edge of the record. Make the adjustment with a 10-inch record on the turntable and the 10-inch record ejector and shelf (3) lowered to the 10-inch position. Remove the plug button (22) in the base plate near the pickup arm. With the power plug removed, turn the control knob to reject and release. Rotate the turntable until the needle has almost landed on the record. Rotate the eccentric adjustment screw (F) (located under the plug button) of the pickup arm guide assembly (69) in the proper direction until the correct adjustment has been made. If the landing position of the needle is not within range of the eccentric adjustment screw, an approximate adjustment is made as follows: Loosen the pickup mounting adjustment screw (19) and slip the pickup arm slightly in respect to the pickup arm guide assembly (69). Retighten the screw (19). For a finer adjustment, use the eccentric adjustment screw (F) as described above. Check the pickup arm for free movement.

Changer Drive Assembly

The idler wheel should be in a positive frictional position with the drum of the drive assembly (24) at all times. To make the adjustment, loosen the idler bearing nut (28) and slip the idler wheel on the release lever (26). Tighten the nut while holding the idler wheel in contact with the drum.

TROUBLES

Changer Cycles Continuously

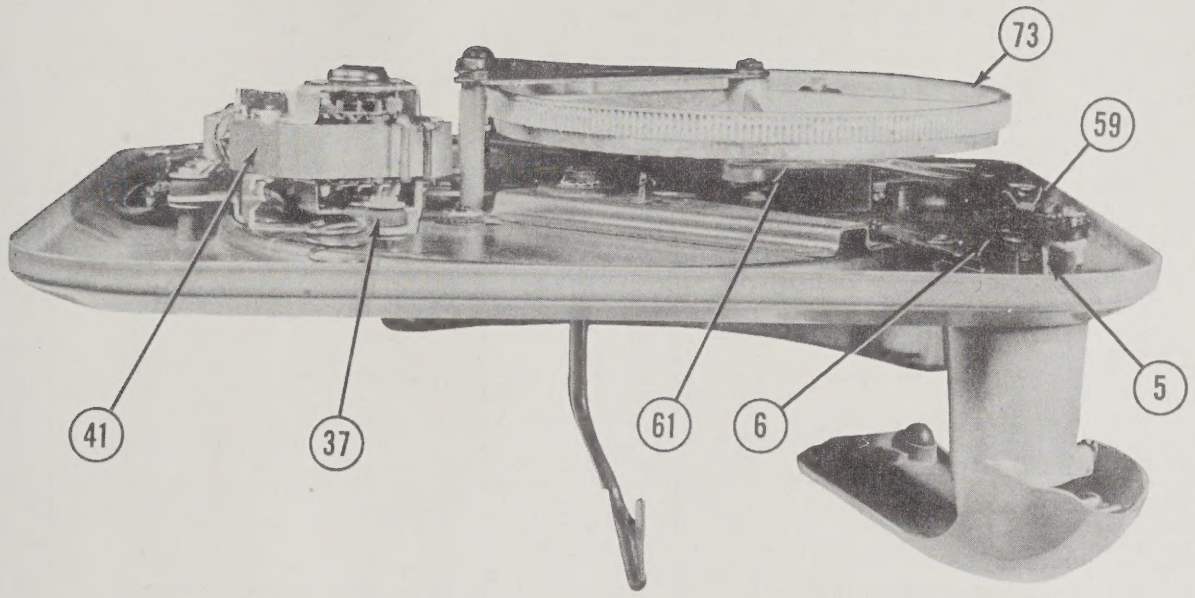
(a) Spring (64) loose, weak or missing.
(b) Spring (49) loose or missing.

Changer Fails to Trip

(a) The pawl spring of pawl (72) loose or missing.
(b) The positive tripping lever (66) bent or loose, thereby not striking the stud of the tripping lever assembly (65).
(c) Spring (62) loose or missing.
(d) The positive trip screw (70) not adjusted correctly.

Changer Trips Before Record Is Completed

(a) The positive trip screw (70) not adjusted correctly. By turning the screw counterclockwise, the tripping will be delayed.
(b) Spring (64) loose or weak.



REAR VIEW—BOTTOM

Stalls During the Change Cycle

(a) Idler wheel (25) out of adjustment. See adjustment on "Changer Drive Assembly."

Pickup Arm Height Incorrect

(a) The bracket of the pickup arm lift post (15) is bent.
(b) The adjustment screw (14) not properly adjusted. Check adjustment of "Pickup Arm Height."

Pickup Arm Sluggish or Binding

(a) Pickup arm lead too tight.
(b) Detent lever assembly (71) bent.

Jerky During Change Cycle

(a) Idler wheel (25) not contacting the drum of the changer drive assembly (26) properly.
(b) Oil or grease on the idler wheel (25) and the drive wheel (36).
(c) Spring (62) weak.

Turntable Speed Slow or Irregular

(a) Oil or foreign matter on the drive wheel (36) and rim of the turntable. Clean with carbon tetrachloride.

Records Jam Between Shelf and Spindle

(a) Spindle (7) bent.

Records Fail to Drop to Turntable

(a) Check spring (59).

LUBRICATION

This changer leaves the factory oiled and lubricated. Under normal conditions, further lubrication will not be required for at least one year or 1,000 hours of operation.

In lubricating, clean all old grease and oil from changer with carbon tetrachloride.

Use lubriplate on the following:

1. Teeth of the cam assembly.
2. Ball retainer assembly (20) and (29).
3. Around the stud mountings of the selector bar assembly (55) and tripping arm assembly (47).
4. Roller of the stop lever assembly (43).

Use light oil on the following:

1. The lift pin assembly (15).
2. The bearing of the changer drive assembly in the bracket (74).
3. Around the positive tripping lever and other frictional surfaces.

CAUTION: Avoid excessive lubrication. Do not allow oil or grease to get on the rubber of the idler wheel and drive wheels, the motor pulley, the rim of the changer drive assembly (24), or the turntable. Any oil or grease at these points should be removed with carbon tetrachloride.

PARTS LIST

Ref. No.	Part No.	DESCRIPTION
1	21070	Record hold-down clamp (Part of 4) (Also includes 21306 Record Clamp Pivot)
2	21075	Rubber bumpers (Part of 4)
3	21078	10-inch record ejector and shelf (Part of 4)
4	21252	Push-off assembly including 1, 2, 3, 5, and 6
5		Size change lever (Part of 4)
6		Ejector lever (Part of 4)
7	21016	Center post assembly
8	20578	Pickup arm
9		Astatic "714" nylon crystal (N1)
10	16141	Crystal Mounting Screws
11	16138	Speed nut
12	20579	Pickup arm lift plate
13	16141	Screw
14		Pickup arm height adjusting screw (Part of 15)
15	21260	Pickup arm lift post assembly
16	21258A	Turntable assembly
17		Pickup arm pivot mounting (Part of 18)
18	21259	Pickup arm carrier assembly
19		Pickup mounting adjustment screw (Part of 18)
20	21372	Ball retainer assembly
21	21376	Flat washer
22	16107	Plug button
23	20571	Control knob
24	21010	Changer drive assembly (includes 26)
25	12757	Idler wheel
26	20561	Release lever assembly
27	16064	"C" washer
28	21373	Idler bearing nut
29	21360	Ball retainer assembly
30	21362	Flat washers for part No. 21360
31	6051	Flat washer
32	21284	Base plate
33		Lock washer
34		Lock nut
35		Push-off assembly mounting screws
36	12757	Drive wheel
37	22067	Grommet
38	22068	Motor mounting spacers
39	6155	Flat washer
40	6088	Motor mounting nut
41	21286	Motor
42	16027	"C" washer
43	20509	Stop lever assembly
44	16026	"C" washer
45	21003	Control knob arm assembly
46	16026	"C" washer
47	21255	Tripping arm assembly
48	16064	"C" washer
49	20570	Spring
50	21377	AC switch
51	6062	Nut
52	21344	Spring, detent (Part of 69 assembly)
53	20572	Idler pulley holder
54	16064	"C" washer
55	21254	Selector bar assembly
56	21327	Spring for selector bar
57	12761	Spring
58	16064	"C" washer
59	20127	Spring, push-off lever
60	20126	Release arm spring
61	20566	Release arm assembly
62	21113	Spring
63	16064	"C" washer
64	21287	Spring
65	21107	Tripping lever assembly
66	12354	Positive tripping lever
67	16064	"C" washer
68		Adjustment and safety fingers (Part of 69)
69	21256	Pickup arm guide assembly
70		Positive trip set screw (Part of 69)
71	21250	Detent lever assembly
72		Pawl for trip lever (Part of 65)
73	21253	Cam assembly
74	20510	Cam and changer drive assembly bracket
75	16026	"C" washer